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OF
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Occasional Paper
No. 29
1986

ARCHAEOLOGY IN ALBERTA 1985

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ARCHAEOLOGY IN ALBERTA, 1985

Compiled by

John W. Ives

Archaeological Survey of Alberta
Occasional Paper No. 29

Prepared by:
Archaeological Survey
of Alberta

Published by:
Alberta Culture
Historical Resources Division

OCCASIONAL PAPERS

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ARCHAEOLOGY IN ALBERTA, 1985

By
Jack Brink
Archaeological Survey of Alberta

The year 1985 was marked by major changes in top management personnel at the Archaeological Survey of Alberta. Most importantly, Paul Donahue resigned as Director of the Archaeological Survey of Alberta, a position he held either on an acting or permanent basis since July 1980. He has assumed a position as one of the assistant directors of the National Museum of Science and Technology. During his five years as Director, Paul steered our organization through highly variable and demanding situations. From the intense pressure of the development "boom" years in the early 1980s, to the drastic curtailment of private sector activity beginning in late 1982, the demands upon the functions of the Survey have changed dramatically. Paul guided our organization through these difficult times, and all staff join me in commending him for his contribution and commitment to archaeology in this province. We wish him the best of success with his new position.

Also leaving us in the middle of this year was David Burley, the Head of the Research Section since August 1982. David has taken a one year leave of absence to teach anthropology at the University of Saskatchewan. Since David, in conjunction with Paul, was instrumental in introducing some of the innovative programmes which I will be mentioning below, we all wish David a productive and rewarding year in Saskatchewan, but hope that he elects to return to our office. The duties of the Section Head have been assumed by Jack Ives.

The other important staff change was the resignation of our Paleoenvironmental Research Officer, Bob Vance. Bob decided to pursue his doctorate in paleoenvironmental studies at Simon Fraser University. We thank Bob for his years of productive service to the Survey and wish him every success with his educational studies. The paleoenvironmental position has recently been filled by Alwynne Beaudoin. Alwynne comes to us from Trent University where she has been teaching a variety of earth science courses. Her background is in Quaternary Studies, including palynology and soil sciences, and we look forward to Alwynne joining our staff and beginning her contribution to interdisciplinary studies in Alberta archaeology.

The year 1985 also marked the initiation of some exciting programmes in furthering an understanding of archaeology in Alberta. Concomitant with the general slowdown in private sector development, the Archaeological Survey of Alberta has made a concerted effort to establish better public awareness of archaeology in Alberta. A major initiative in this direction was the commissioning of a book aimed at the general public on the topic of Alberta's prehistoric and historic past. In an agreement between the Archaeological Survey of Alberta and Lone Pine Publishers, an illustrated volume on Alberta archaeology is to be produced and should be available in the fall of 1986. A freelance writer, in consultation with other archaeologists in the province, will produce the text. We expect this book to be a significant step forward in the long overdue goal of bringing the fascinating record of Alberta's past to the people of the province who, in one way or other, fund many of the studies which have produced our knowledge of this subject.

Two other projects also directed at enhancing public education, appreciation and awareness of Alberta archaeology merit mention. Freelance artists and historical consultants Marna Bunnell and Brian Noble have been awarded a contract to design three posters relating to the discovery, understanding and preservation of Alberta's archaeological record. These posters will be an innovative combination of art and education, and should be available by the spring of 1986. In addition, our Education Officer, Heather Devine, is continuing her important work in furthering the understanding of archaeology throughout the Alberta education system. Heather has made significant progress in involving our office in reviews of curriculum development on archaeologically related matters, thereby ensuring an improvement of the generally poor quality of material currently used by the school system. A report on some of her work in this regard is included in this volume. Heather has also extended her work in public education by becoming involved with native education projects, and assisting several private corporations which are actively promoting to the public their positive involvements with the preservation of Alberta's heritage. I am extremely excited by the proactive approach taken by the Archaeological Survey of Alberta in 1985 to further the cause of public enjoyment and education of the discipline of archaeology. Ultimately, this directive must become an integral function of the organization for many years to come.

The level of archaeological activity in 1985, as reflected in permits granted, was essentially similar to that of the previous year. A total of 99 permits were issued; three were subsequently cancelled, for a yearly total of 96 (Table 1). This compares with 100 permits issued in 1984. Below is a summary of some of the major projects undertaken in Alberta in 1985. This summary borrows heavily from a previous write-up of archaeological work in the province by Ball (1985).

The majority of cultural resource management projects undertaken were small scale assessment surveys carried out by various consultants in the province, including: John Brumley and Barry Dau (Ethos Consultants Ltd.); Jim Calder, Margaret Kennedy, Bea Loveseth, Stan Van Dyke, and Barney Reeves (Lifeways of Canada Ltd.); Gloria Fedirchuk and Ed McCullough (Fedirchuk McCullough and Associates Ltd.), Rebecca Balcom, Jim Light and Bruce Wright (ARESCO Ltd.); John Pollock (Settlement Surveys Ltd.); Don Steer (D.S. Consulting); Stan Saylor; Eugene Gryba; Sheila Minni; Terry Gibson; and Peter Bobrowsky. The largest CRM project was a survey of the Oldman River Dam Project undertaken by Barney Reeves (Lifeways of Canada Ltd.) for Alberta Environment.

Gloria Fedirchuk (Fedirchuk McCullough and Associates Ltd.) undertook further collection from EaPh-4 on the Little Bow River, in conjunction with a University of Calgary summer course; the work at this site is reported in this volume. The site is a high terrace, Late Prehistoric campsite, and is of interest primarily for the variety of ceramics present.

John Brumley of Ethos Consultants Ltd. is currently compiling data from the Gleichen Buffalo Jump and campsite (EfPg-2). The latter is a "classic" bison jump, long reported in the literature but never adequately recorded. Examination of private collections and some minor excavation at the campsite periphery may yield data on seasonality and cultural affiliation.

Brian Ronaghan (Archaeological Survey of Alberta) and Michael Wilson (Department of Geology, University of Calgary) undertook a brief examination of an area near the High River Microblade site. However, no significant cultural material was found, and it appears that all Paleo-Indian material has long since been collected.

Sheila Minni undertook an archaeological survey and test excavation of the site of the 1885 massacre at the Frog Lake settlement (FkOo-10). The research project was funded by the Alberta Historical Resources Foundation. The purpose of the project was to acquire additional knowledge on the extent, nature and interpretive potential of the site. The survey recorded a total of 32 archaeological features. These features are associated with activities of the Roman Catholic Church, the Hudson's Bay Company, a government interpreter, the Northwest Mounted Police, a government farm instructor, the Indian agent and an independent trader. For further details, see Minni's report in this volume.

Rod Pickard (Parks Canada) conducted test excavations at historic Jasper House located in Jasper National Park. Pickard also continued his survey work in the Athabasca River Valley downstream of Jasper townsite. In Banff National Park, Daryl Fedje (Parks Canada) undertook survey and test excavations along the Trans-Canada Highway between Castle Junction and Lake Louise and along the north side of the Vermilion Lakes. Jim White (Parks Canada) continued pollen analysis of lake sediments from the Bow River valley. Parks Canada activities are briefly summarized in this volume.

The Archaeological Survey of Alberta undertook research projects in a number of different areas under the direction of the staff archaeologists. A resource management oriented sampling study was initiated, aimed at determining historical resource potential of gravel sources in the southern portion of the province. The field survey portion of the study was carried out by Lifeways of Canada Limited under the direction of Bea Loveseth and Stan Van Dyke.

Under the direction of Jack Brink (Archaeological Survey of Alberta), a third season of site studies was conducted at Head-Smashed-In Buffalo Jump (DkPj-1). Key personnel in this project are Milt Wright and Bob Dawe, both of the Archaeological Survey of Alberta. This multi-year research program is linked with the development of Head-Smashed-In as a major interpretive centre. Archaeological studies for the past three years have been aimed primarily at: (1) conducting mitigative work necessary to permit site development; and, (2) enhancing existing knowledge of the site complex to provide additional information and display materials for the interpretive program. The 1985 season concentrated on the latter of these two objectives, focusing on exploration of the camp and processing site situated on the prairie at the base of the kill. Testing was directed towards locating deeper and potentially stratified cultural deposits to circumvent problems associated with the excavation of areas characterized by low deposition and compressed stratigraphy. The attempt was partially successful in that portions of the 1985 excavation area contained cultural deposits to a depth of 50 cm below surface - more than twice the depth of deposits excavated in previous seasons. For further details, see the preliminary report in this volume.

Also associated with the Head-Smashed-In project was a detailed systematic study of the drive lanes located above the jump. This survey was undertaken by Maureen Rollans (Department of Anthropology, University of Alberta) as part of her Master's degree research.

Finally, Susan Marshall (Trent University) carried out survey in the Porcupine Hills to the north and west of Head-Smashed-In for the purpose of locating other kill sites, especially in areas contiguous to known drive lane systems. One definite jump (DkPj-27), located 1 km north of Head-Smashed-In, was tested and revealed at least three separate bone lenses; the middle one is tentatively assigned to the Besant cultural phase. The work at this site is reported in this volume.

Heinz Pyszczyk (Archaeological Survey of Alberta) continued archaeological investigations on Ukrainian sites for the Ukrainian Cultural Heritage Village. The aim of these excavations was to gather structural information which could be used for building restoration at the Village. In addition, material cultural assemblages were collected from Ukrainian homestead sites for research on the visibility of ethnicity in the archaeological record.

Pyszczyk spent an additional two weeks at historic Dunvegan, located in the Peace River region of northwestern Alberta. Archaeological investigations were again undertaken at the late (1878-1918) Hudson's Bay Company's Fort Dunvegan. Excavations were focused around the periphery of the still-standing Factor's House which is in the process of being restored. The investigations were highly productive, yielding structural evidence as well as a good assemblage of artifacts and faunal remains characteristic of the later site occupation time period.

Bruce Ball (Archaeological Survey of Alberta) undertook two brief test excavations, one at Vermilion and the other on the Red Deer River. The objective of the project was to identify undisturbed bison kill sites and to obtain data for the determination of seasonality. While the Sherwood site, near Vermilion, proved to be disturbed, the Miller site on the Red Deer is undisturbed, and information was obtained from both a kill site area and a campsite area. Determination of seasonality will be attempted utilizing incremental growth lines of bison teeth. Using growth measurements from a known sample, an annual growth curve will be first established. Analysis of tooth annuli from the archaeological sample will be then carried out, and the results will be compared to the curve established from the known sample.

Martin Magne (Archaeological Survey of Alberta) carried out a survey of sand dune zones located along the Wapiti River. He recorded several sites, mainly near the confluence of the Wapiti River with the Redwillow and Beaverlodge rivers. One site situated on a crescent dune was tested. An interdisciplinary study has been initiated with members of the Geology Department of the University of Alberta for the purpose of ascertaining the origin, age, and structure of the sand dunes. Magne also began a programme documenting local artifact collections in the Grande Prairie region. Fifty-four artifact collecting localities were plotted to the nearest quarter section, and two separate concentrations of such localities appear to yield relatively frequent Early Prehistoric point types. Field checks of these areas are planned for the upcoming year. More details regarding Magne's work in this area are contained in his report in this volume.

Following completion of a regional synthesis of the Alberta Plains area and after spending the spring and summer months concerned with duties of the Head of Research at the Archaeological Survey of Alberta, Rod Vickers is continuing his research on the Ross site and Late Prehistoric Plains winter settlement patterns.

Michael Forsman (Archaeological Survey of Alberta) carried out an archaeological investigation of Fort Chipewyan, a depot and headquarters site of the fur trade in the Athabasca district. Fort Chipewyan (ca. 1800-1950) was extensively re-built twice during its occupancy. Currently, there are no standing structures on the site. Two structures were investigated, the Chief Factor's residence in the centre of the site, and a powder magazine 300 metres away (see report this volume). Both had been constructed in the 1870s. Thousands of artifacts were recovered, only a small proportion of which were from the earlier periods of site occupation.

Brian Ronaghan (Archaeological Survey of Alberta) continued a site assessment project in the Crowsnest Pass region of southwestern Alberta. Working between Burmis and Lundbreck along the Crowsnest River, Ronaghan has recorded an extremely varied list of archaeological sites, ranging from complex stone features to deeply stratified sites. The results of this study will be used in the development of a model for site significance evaluation in the upper Oldman River basin.

Another noteworthy event of 1985 was the awarding of another five year contract to the Department of Archaeology, University of Calgary, to continue summer fieldwork at the Strathcona Archaeological Centre in the city of Edmonton. This site, which attracts approximately 15,000 visitors during the summer months, offers school children and tourists a chance to watch first hand the conduct of archaeological field excavation. And through our volunteer programme, members of the public can even become involved in the actual fieldwork. The combination of public interpretation and on-going research at the Strathcona site has been a successful venture, and we look forward to a productive collaboration with the University of Calgary for an additional five years.

This year's Annual Review follows much the same format of the two previous issues. That is, it consists of contributed papers and abstracts for many 1985 field projects as well as those for 1984 projects not received in time for publication in the previous Annual Review. A new addition, however, to this year's volume is a section entitled "Research Notes", which is designed to transmit short pieces of information on subjects relevant to Alberta archaeology. Our intent is to provide a space for items which are either too new or too brief to warrant the submission of a paper, but which nevertheless provide important news items which we believe may be of interest to our readers.

We hope to make this a continuing feature of our Annual Review issue, and would encourage all those who feel they may have a suitable item to consider submission to next year's volume.

Table 1. 1985 project permits issued by the Archaeological Survey of Alberta.

Permit	Archaeologist	Project
85-1	John Pollock	Nova, An Alberta Corporation; Algar Lake lateral pipeline; Fort McMurray
85-2	James Light	Canadian Superior Oil Ltd.; well site; Taber
85-3	John Pollock	Small Community Engineering Services; Sprae Creek subdivision; Fort McMurray, Alberta
85-4	Barry Dau	Ocelot Industries Ltd.; wellsites/pipeline; Grand Forks
85-5	Bea Loveseth	Alberta Culture research; inventory of aggregate resource locales; southeastern Alberta
85-6	Bruce Wright	United Management Ltd.; Edgemont Stage VI subdivision; Calgary
85-7	James Light	Canadian Superior Oil Ltd.; pipeline/mitigation of DkPb-15; Barnwell
85-8	James Light	County of Lethbridge; Coaldale gravel pit; Picture Butte
85-9	John Pollock	Dome Petroleum Ltd.; Lindbergh heavy oil project; Elk Point
85-10	Terrance Gibson	Alberta Transportation; Hwy. 1:14/Devries gravel pit; Cluny
85-11	Gloria Fedirchuk	PanCanadian Petroleum Ltd.; Travers well site/access road; Turin
85-12	John Pollock	TransAlta Utilities Corporation; Project 410, 794L transmission line; Lac La Biche
85-13	Barry Dau	Alberta Forest Service/Alberta Transportation; Musreau Lake campground/Smoky River gravel pits; Grande Prairie
85-14	Gloria Fedirchuk	PanCanadian Petroleum Ltd.; Rockyford wellsite/access road; Rockyford

Table 1 (continued)

Permit	Archaeologist	Project
85-15	Brian Reeves	Coleman Collieries; subdivision; Coleman
85-16	Bea Loveseth	Town of Pincher Creek; sewer lagoon development; Pincher Creek
85-17	Edward McCullough	Dome Petroleum Ltd.; Wembley pipeline project; Grande Prairie
85-18	Edward McCullough	Total Petroleum Canada Ltd.; Wembley pipeline project; Grande Prairie
85-19	James Light	Hat Development; Burnside and Lecuyer subdivisions/mitigation of EaOq-22, 23; Medicine Hat
85-20	John Pollock	Keith Driver & Associates; Chicken Hill Lake subdivision; Bonnyville
85-21	Jack Brink	Alberta Culture; research at Head-Smashed-In buffalo jump (DkPj-1) and area survey; Fort Macleod
85-22	Barry Dau	Placer Cego Petroleum Ltd.; Hilda-Schuler gas gathering system; Hilda
85-23	James Helmer	Alberta Culture; research at Strathcona site (FjPi-29); Edmonton
85-24	Gloria Fedirchuk	Alberta Culture; research at Little Bow site (EaPh-4); Stavely
85-25	Eugene Gryba	Alberta Transportation; Cadron gravel pit/Harold Creek-Salisbury Road/Horse Creek crossing; Andrew/Cremona/Cochrane
85-26	Rebecca Balcom	Norcen Energy Resources; Majorville well site access road realignment; Bassano
85-27	Rebecca Balcom	Orbit Oil and Gas Ltd.; Majorville pipeline; Bassano

Table 1 (continued)

Permit	Archaeologist	Project
85-28	Rebecca Balcom	Canadian Occidental Petroleum Ltd.; Mazeppa gas gathering system; High River
85-29	Maureen Rollans	Alberta Culture; research at Head-Smashed-In buffalo jump - drive lane system; Fort Macleod
85-30	Peter Bobrowsky	Alberta Transportation/Alberta Recreation and Parks; highway/ campsite construction; central and southern Alberta.
85-31	Margaret Kennedy	United Church of Canada; research at Morleyville Mission historic site (EhPq-6); Morley
85-32	Bea Loveseth	Canlea Western Holdings Ltd.; Scenic Acres subdivision; Calgary
85-33	Bea Loveseth	Alberta Natural Gas Co. Ltd.; gas pipeline; Peace River
85-34	Cancelled	
85-35	Barry Dau	Eastern Irrigation District; Brooks grazing reserve; Brooks
85-36	John Pollock	Nova, An Alberta Corporation; Spring Creek pipeline/Foothills Mainline; Sturgeon Heights
85-37	Sheila Minni	The City of Edmonton; S.L.R.T. extension - Phase II; Edmonton
85-38	Brian Ronaghan	Alberta Transportation; Callahan sand pit/ assessment of EdPk-38; High River
85-39	Cancelled	
85-40	John Pollock	Aldritt Development Ltd.; subdivision/trailer park; Winterburn
85-41	Edward McCullough	The Imperial Pipe Line Co. Ltd.; pipeline project; Edmonton-Sundre
85-42	Margaret Kennedy	University of Calgary; Berry and Shears Whiskey Post; Okotoks

Table 1 (continued)

Permit	Archaeologist	Project
85-43	Brian Ronaghan	Alberta Culture; research in Burmis - Lundbreck Corridor; Crowsnest Pass
85-44	John Pollock	Gulf Canada Resources Inc.; Valhalla pipeline; Beaverlodge
85-45	James Light	Alberta Energy and Natural Resources; Bow River boat launch; Ogden
85-46	Martin Magne	Alberta Culture; Smoky-Peace regional survey; Grande Prairie
85-47	Brian Reeves	Alberta Environment; Oldman River dam project; Cowley
85-48	Michael Forsman	Alberta Culture; Fort Chipewyan (IeOs-3, 4); Fort Chipewyan
85-49	Sheila Minni	Alberta Historical Resources Foundation; research at Frog Lake Massacre site (FkOo-10); Frog Lake
85-50	Heinz Pyszczyk	Alberta Culture; research at Fort Dunvegan (GlQp-7); Fairview
85-51	Bruce Ball	Alberta Culture; research at Sherwood and Miller sites; Islay/ Haynes
85-52	Barry Dau	Soquip Alberta Inc./Grant Trimble Engineering Ltd.; well sites/access roads; Medicine Hat
85-53	John Brumley	Alberta Transportation; mitigation at EaPk-96; Stavely
85-54	Rebecca Balcom	Alberta Recreation and Parks; mitigation of EgPu-14; Canmore
85-55	John Pollock	Nu-West Development; Pineview Phase II subdivision; St. Albert
85-56	Barry Dau	Texaco Canada Resources; oil well sites; Manyberries
85-57	John Pollock	Texaco Canada Resources; well site; Battle Lake

Table 1 (continued)

Permit	Archaeologist	Project
85-58	Barry Dau	City of Medicine Hat; Medicine Hat regional trail system; Medicine Hat
85-60	Heinz Pyszczyk	Alberta Culture; research at Franco school and barn/Chizowsky homestead/Buczacz church/Luzan grocery store; Musidor/Smoky Lake/Andrew/Innisfree
85-61	John Brumley	Ocelot Industries; Grand Forks well sites; Grassy Lake
85-62	Heinz Pyszczyk	Alberta Culture/City of Calgary; assessment of Hunt House; Calgary
85-63	John Brumley	Alberta Transportation; mitigation of Gleichen kill campsite (EfPg-2); Gleichen
85-64	Edward McCullough	I.C.G. Resources Ltd.; Willow Creek pipeline project; Drumheller
85-65	Rebecca Balcom	Canadian Western Natural Gas Ltd.; ADRI water pipeline; Lethbridge
85-66	Bea Loveseth	Alberta Transportation; Salisbury-Harold Creek road/mitigation of EiPs-13, EiPr-4,5; Water Valley
85-67	Michael Wilson	University of Calgary; research at EgPm-124; Calgary
85-68	Bea Loveseth	Canterra Energy Ltd.; Hussar gas pipeline; Chancellor
85-69	Edward McCullough	Amoco Canada Petroleum Ltd.; Elk Point thermal project; Elk Point
85-70	James Light	Luscar Sterco Ltd.; Coal Valley project; Robb
85-71	Bea Loveseth	D.A. Watt Consulting Group Ltd.; Strathcona subdivision/mitigation of EgPn-294,295; Calgary
85-72	Gloria Fedirchuk	Gulf Canada Resources;Garrington - Lanaway pipeline project; Caroline

Table 1 (continued)

Permit	Archaeologist	Project
85-73	Bea Loveseth	Dome Petroleum Ltd.; Majorville gas plant/pipeline; Milo
85-74	Bea Loveseth	O'Rourke Engineering Ltd./Soquip Alberta Inc.; Hoadley pipeline gathering system; Ponoka
85-75	John Pollock	Nova, An Alberta Corporation; Marlboro gas pipeline/meter station; Edson
85-76	Cancelled	
85-77	Sheila Minni	Nova, An Alberta Corporation; Wembley and Henderson Creek pipelines; Grande Prairie
85-78	Barry Dau	Alberta Environment; Forty Mile Coulee reservoir project; Bow Island
85-79	Michael Forsman	Alberta Culture; assessment of GePa-16 (possible Greenwich House); Lac La Biche
85-80	Margaret Kennedy	University of Calgary; research at Lafayette French whiskey trader's cabin; High River
85-81	Bea Loveseth	Westridge Petroleum Corporation; Cygnet-Prevo gas gathering system; Red Deer
85-82	Edward McCullough	PanCanadian Petroleum Ltd.; Lindbergh heavy oil project; Elk Point
85-83	Bea Loveseth	Suncor Inc. Resources Group; well sites; Drumheller
85-84	Donald Steer	Nova, An Alberta Corporation; Tange Creek pipeline; Hotchkiss
85-85	Edward McCullough	Singleton Associated Engineering Ltd./Bow River Pipelines Ltd.; Princess North Loop pipeline project; Wardlow
85-86	John Brumley	Alberta Environment; Oldman River dam project; Blairmore/Lundbreck

Table 1 (continued)

Permit	Archaeologist	Project
85-87	Rebecca Balcom	British Petroleum Canada Ltd.; Wolf Lake Phase Two oil sands project; Bonnyville
85-88	Rebecca Balcom	Canadian Superior Oil Ltd.; well site/pipeline/road; Taber
85-89	Edward McCullough	Suncor Inc.; Burnt Lake heavy oil project; Cold Lake
85-90	James Calder	Canterra Energy; Wolf West gas pipeline; Edson
85-91	Stanley Saylor	Singleton Associated Engineering Ltd./Bow River Pipe Lines Ltd.; Jenner pipeline project; Jenner
85-92	John Brumley	Passburg Petroleum Ltd.; Coutts well site; Coutts
85-93	Stanley Saylor	Nova, An Alberta Corporation; Jenner Milo pipeline project; Milo
85-94	John Pollock	Alberta Power Ltd.; Louise Creek-Little Study transmission line; Valleyview
85-95	Rebecca Balcom	Canadian Western Natural Gas; Taber-Bow Island pipeline; Taber
85-96	Edward McCullough	Alberta Power Ltd.; Whitefish Lake - Mildred Lake/Marguerite Lake transmission projects; Lac La Biche
85-97	James Calder	Brisbin Gates Engineering/Atco Housing and Development Ltd.; subdivision; Airdrie
85-98	Stanley Saylor	Canadian Superior Oil Ltd.; Taber well sites/access roads; Taber
85-99	John Brumley	Lacana Petroleum Ltd.; Matziwin gas well sites; Brooks

ARCHAEOLOGY IN ALBERTA SOCIAL STUDIES: AN OVERVIEW

By
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INTRODUCTION

Since its inception, the Archaeological Survey of Alberta has been, primarily, a regulatory agency. To carry out this function successfully, the members' activities have traditionally revolved around research and resource management responsibilities. Research activities range from initial historical research, fieldwork, analysis, interpretation, and preservation, to the reporting and publication of findings. Resource management responsibilities include initial evaluation of the potential for damage to heritage resources by proposed development projects, the monitoring of the developments, and the subsequent assessment of their impact upon the archaeological resource base.

In recent years, however, the need to educate and inform the public has been recognized and priorized by the Archaeological Survey. To this end, a Public Education Officer (the writer) was appointed to coordinate the development and distribution of instructional and informational materials for public consumption and school use.

It is not enough, however, merely to hire an educator to develop materials dealing with archaeology. Such materials are not likely to be perceived as credible instructional aids in Alberta classrooms without evidence of a great deal of preliminary investigation on the part of the developer. To fulfill this prerequisite, an investigation was undertaken by the writer into curriculum and instruction in Alberta to determine instructional needs in the areas of archaeology and native prehistory.

The study endeavored to address the following questions:

1. What is the current status of archaeology/prehistory as a topic in schools in general, and Alberta schools in particular?
2. What is the nature (i.e., content and methodology) of archaeology and prehistory materials employed in Alberta schools?

3. What are the weaknesses and strengths of archaeology/prehistory curricula as perceived by classroom teachers, curriculum specialists, and subject matter experts (archaeologists)?
4. What role does the Historical Resources Division (specifically the Archaeological Survey of Alberta) play in archaeology/prehistory education at present, and how can greater contributions be made?

Answers to these questions would provide the information necessary for the delineation of instructional needs and the subsequent design of useful instructional materials. The findings of the study were compiled into a six part report entitled Curriculum Development in Archaeology and Prehistory: A Needs Assessment in Social Studies Education.

While Part One served as an introduction to the entire paper, Part Two introduced the discipline of archaeology to the reader. Archaeology was defined within the context of the social sciences, and a rationale for its practice as a profession and its place as a worthwhile topic for investigation in schools was presented.

Part Three discussed how archaeology is taught in school programmes in Britain and the United States. Key factors influencing the success of such programmes were identified. Part Four consisted of an in-depth examination of the treatment of Alberta archaeology and native prehistory in the Alberta Social Studies Curriculum. Designated Social Studies topics, and specific learning resources dealing with these topics, were examined to determine how programme content might be enhanced.

Part Five was a summary of perceived needs in the area of archaeology/prehistory education as delineated by special interest groups and government studies. Special interest groups contacted included classroom teachers, archaeologists, and native education consultants. Government documents discussed include the Native People in the Curriculum report, the Review of Secondary Programs, and The Final Report of the Committee on Tolerance and Understanding. Part Six concluded the study by discussing content and methodology recommendations for the enhancement of archaeology and native prehistory content.

The completed study was submitted to the Curriculum Branch of Alberta Education as one means of establishing a cooperative approach to curriculum development. The document has received a very encouraging response from Alberta Education; at the present time, the writer is preparing, by request, a document outlining the proposed scope and sequence of content dealing with archaeology to be considered for possible inclusion in the Alberta Social Studies programme.

The following extract from Part Four of the needs assessment study deals with the treatment of archaeology in the Alberta Social Studies programme.

ARCHAEOLOGY CONTENT IN THE CURRICULUM

This portion of the curriculum examination endeavored to answer the following questions:

- Are topics pertaining to archaeology included in the programme?
- What instructional materials are used, and how are these materials employed to teach archaeological concepts?
- What are the weaknesses and strengths of the material?

The first question pertaining to current curriculum content in archaeology was easily answered. There are three places in the Social Studies programme where archaeology is formally included: at Grade Six in Topic 6(A) - "How People in Earlier Times Met Their Needs"; in an elective unit developed to complement Topic 6(A) entitled "Archaeology"; and as part of the Physical and Cultural Anthropology 30 elective offered at the high school level. Each of these curriculum areas will be discussed in turn.

In Topic 6(A) - "How People in Earlier Times Met Their Needs" - ancient civilizations are discussed in relation to the means by which early peoples satisfied physical, psychological and social needs. As part of the investigation, students are required to be familiar with the roles of archaeologists and historians in providing information about earlier civilizations through the use of "artifacts, fossil remains, pictorial data, oral traditions, and written records" (Alberta Education 1981:46). It should be noted that the topic description specifically states that content "is to be selected from ancient Mediterranean civilizations (e.g., Greek, Roman, Egyptian) or pre-Columbian America (e.g., Mayan, Inca, Aztec)" (Alberta Education 1981:46). By implication, content pertaining to prehistoric native culture in Alberta or western Canada is to be excluded. Apparently, the nomadic lifestyle, characteristic of Alberta's earliest inhabitants, does not include all of the elements integral to "civilization", i.e., the establishment of permanent cities characterized by stone buildings; the systematic production and dissemination of surplus foodstuffs and goods; a formal written language; the use of arithmetic and geometry in making scientific calculations; a hierarchical class system (Hoebel 1972:219-220). Because Alberta's prehistoric cultural remains do not qualify as the remains of a "civilization" per se, despite their acknowledged antiquity and cultural significance, there is no opportunity to discuss archaeological activity in Alberta in the context of the unit.

There is, however, an attempt to include material dealing with Alberta archaeology in the elective unit entitled "Archaeology" designed to complement Topic 6(A). The learning activity in this elective unit revolves around the use of the simulation game Dig (Lipetzky 1969). In the simulation, students are divided into two competing teams. Each team then creates the culture for a hypothetical civilization, stressing the interrelationships of cultural patterns, economics, government, family, language, religion, and recreation. The teams construct artifacts which reflect the cultural patterns, and then bury them in the ground according to archaeological principles. Then each team scientifically excavates, restores, and analyses the other team's artifacts, learning about culture patterns in the process. These learned skills can then be applied to the analysis of contemporary culture (Lipetzky 1982:46). Students are then directed to read the archaeology portion in Exploring Civilizations. Activity cards, charts, and exercises based on the text Alberta's Prehistoric Past are provided at a learning station where students individually select and pursue learning activities based on Alberta archaeology. Students then draw up a "synthesis of life in earlier times" based on archaeological finds. A field trip to Drumheller is suggested as a suitable concluding activity.

There are aspects of this elective activity which may be problematic, since the outline provided in the Alberta Education electives monograph does not provide sufficient information to utilize the game successfully. First of all, merely obtaining the game may be difficult. Not only is the publication date listed for the kit erroneous, but no publisher's address is provided to enable teachers to write for the catalogue. If the local library does not have a company catalogue, the teacher is out of luck. It would be interesting to know how many school divisions have the game, as it is likely that teachers would be reluctant to use a simulation that they had no time or opportunity to preview before purchase or use.

Previewing this game is essential for its successful utilization, and the instructional approach in the module does not indicate to the teacher that this is necessary. An examination of the literature describing Dig indicates that successful completion of the module will not only take approximately 15 to 21 hours, but that some specialized materials will have to be constructed or otherwise obtained in advance. This kit cannot be used on the spur of the moment, and the fact that the elective does not provide more specific information about aspects of this kit will not only effectively prevent the utilization of the kit, but perhaps discourage the utilization of the entire instructional unit.

The second aspect of this elective activity that merits examination concerns the references suggested for use, specifically Exploring Civilizations and Alberta's Prehistoric Past.

The book Exploring Civilizations presents a rather fanciful description of an archaeological dig in Egypt, complete with singing diggers and supervising archaeologists who scold the workers and "do little actual digging" (Linder et al. 1979:18). The stated purpose for, and methodology of, the described dig is so vague and simplistic that it would provide little guidance to students wishing to learn more about the "archaeological processes of enquiry". The photographs accompanying the chapter may cause even more confusion, as they obviously illustrate non-Egyptian archaeological activity. Subsequent chapters present a "first-person"(?) account of the discovery of Troy by Schliemann, and a sketchy, simplistic summary of events in ancient Egypt. The discussion questions accompanying each chapter appear awkwardly constructed and, in some cases, the questions do not appear to serve any evaluative function, because they do not appear to test for comprehension of concepts presented in this material.

Other inaccuracies in content and presentation scattered throughout the text have been discussed at length in the Native People in the

Curriculum Report. One must agree with the authors of this report, who state, "There must be a better book available" (Decore et al. 1981:43).

Alberta's Prehistoric Past is another book where content may be problematic. Because both palaeontology and archaeology are presented side by side, it may reinforce the common misconception that archaeologists dig up dinosaurs. The fictionalized account of the life of Small Eagle, a Plains Indian boy, is rife with inaccuracies (Decore et al. 1981:100). To be fair, however, the book does provide an overview of Alberta archaeology, despite occasional errors.

Students are encouraged to utilize activity cards, charts and exercises based on material in Alberta's Prehistoric Past. It is unclear whether these materials are available through the School Book Branch, or whether they are to be developed by teachers. What aspects of Alberta's Prehistoric Past should be highlighted? The module provides very little direction in these matters.

The suggested culminating activity for this unit is a visit to Drumheller. From an archaeological standpoint, this activity is inappropriate, as it tends to reinforce the misconceptions people have concerning the relationship between archaeology and palaeontology. A more appropriate activity would be a visit to either the Strathcona Archaeological Centre just outside of Edmonton or the Head-Smashed-In Buffalo Jump near Fort Macleod. The Strathcona Archaeological Centre currently has an educational programme in place and welcomes school tours. The Head-Smashed-In Buffalo Jump site (which has been designated as a UNESCO World Heritage Site) is in the process of development, and spring/summer interpretive programmes have been in operation since 1983.

One final comment about this elective module concerns the information sources at the conclusion of the monograph. Although both the Glenbow Museum and the Provincial Museum and Archives of Alberta are listed as resources, the Archaeological Survey of Alberta is not. Like the Provincial Museum, the Archaeological Survey is a branch of the Historical Resources Division of Alberta Culture, a division which also includes the Historic Sites Service. When dealing with topics of a historic or cultural nature, these government branches are indispensible as resource tools. Most branches of Alberta Culture not only produce pamphlets and other informational materials, but employ education officers and others whose responsibilities include communication with members of the public. The inclusion of these branches as information sources would be of great assistance to teachers.

Although curriculum materials used in Language Arts were not initially considered for review in this needs assessment, one exception was made. The writer examined a prescribed text for Grade Six Language Arts entitled Starting Points in Reading, Level C First Book (Cross and Hulland 1974). Within the text is a reading unit dealing with archaeology entitled I Dig. Because some of the Social Studies teachers polled mentioned that they used this unit in conjunction with Social Studies activities in Grade Six, the reading unit was deemed to merit examination.

Most of the unit is quite acceptable, with the exception of the story entitled "Being a Spare-Time Archaeologist". There are a number of problems with this story which make it undesirable for study in the classroom.

This autobiographical tale describes how archaeologist Jim Ingram acquired his interest in archaeology as a child. Although the story may be factual, from an archaeological standpoint it promotes some destructive practices. Not only does the young Ingram dig rather dangerous pits in his search for arrowheads to add to his collection, but at one point in the story, he digs up an Indian skeleton with his bare hands, removes the skull and arrowheads, and races off to the local newspaper with his find, where he is touted as a "young archaeologist". In actual fact, he destroyed an archaeological site and removed the artifacts. The young protagonist's actions in the story are illegal (in most, if not all, provinces) and morally wrong, but nowhere is this indicated, either in the story or in the study notes contained in the teacher's guide. This is a grievous sin of omission. The story culminates with a description of the excavation of a mastadon, further reinforcing the common misconception that archaeologists excavate extinct animal remains which may not have any association with man's past.

This story is problematic on so many levels that it should not be used, or should only be used with great care. Not only are terms used that are nonsensical, e.g., "war point", but excavation techniques as practiced in this story are all but nonexistent. The story, although a well-intentioned attempt to introduce children to the excitement of archaeology, may well incite them to break the law.

This story is followed by "Four Boys and a Dog", which describes the discovery of the cave paintings of Lascaux, and "Taking Care of Old Things", a discussion of how archaeologists carefully preserve what they find. Ironically enough, both stories present situations where archaeological finds are dealt with responsibly; one can only hope that the teacher will make distinctions between the irresponsible "archaeological activities" in "Being a Spare-Time Archaeologist" and the more careful handling of archaeological finds in the stories that follow.

The final curriculum to be examined was the Physical and Cultural Anthropology 30 program, offered as a social sciences elective at the high school level. The two primary references listed for the course include the textbook Anthropology for Our Times (Cover 1971) and a pamphlet from Alberta Culture entitled Archaeological Survey of Alberta (1976). The primary text is a good overview of anthropology, but the major archaeology content is confined to approximately four pages of text. The prescribed government pamphlet is no longer available from Alberta Culture; however, other pamphlets have since been produced which present the same material and more.

The primary concern that the writer has with the program is the overall lack of direction provided to teachers in the presentation of material. Topics are listed and supplementary references suggested, but that is all. If the teacher did not have access to the supplementary references, it would be difficult to teach the material because the primary references do not contain enough content to facilitate the discussion of certain topics in depth, particularly in the area of archaeology. Suggested student activities also suffer from this lack of material and subsequent lack of concept development. One suggested activity that pertains to archaeology requires groups of students to "bury artifacts", excavate "sites" and hypothesize as to the nature of civilization (Alberta Education 1976:10). A simulated dig is a complex undertaking requiring a great deal of preparation of both materials and procedures. If the simulation is not planned and executed correctly, it will degenerate into a "treasure-hunt" where the main objective is to uncover artifacts rather than to interpret the nature of the artifacts in the context within which they were found. The curriculum provides no references to assist the teacher in planning such an activity other than the film entitled Five Foot Square from which the writer assumes teachers will be expected to acquire the skill to undertake a simulated dig.

Another activity which pertains to archaeology suggests that students "visit a museum to hypothesize how palaeolithic implements were constructed and used" (Alberta Education 1976:17). This activity is very vague. It does not state what museums students should visit to find these implements, nor whether there are any opportunities to experiment with the making or utilization of stone tools at local museums or elsewhere. Little information is provided to the teacher to allow for the successful completion of such an activity, and it is noted that no museums are listed as resources in the curriculum guide.

It is the writer's opinion that too much of the Anthropology 30 programme relies upon the resources and imagination of the teacher to carry it off successfully. Although it is not unreasonable to expect a competent teacher to be able to plan and teach a program in anthropology, it should be remembered that the resources that are readily at hand in school libraries and resource centres may be somewhat limited due to the perceived "esoteric" nature of the subject. It should also be noted that there are few teachers who possess a sufficiently strong background in anthropology to enable them to teach a programme without some support materials and, in some cases, in-service training.

It is the writer's understanding that the social science electives have not been reviewed or revised, because the Curriculum Branch of Alberta Education is waiting for the final recommendations of the Secondary Education Program Review. There is some speculation as to whether the social science electives will be limited to four options, whether they will be abolished altogether, or whether the Social Studies programme will be divided into two streams.

It was also learned that during 1983-84 only 23 schools offered the Cultural and Physical Anthropology 30 course to a total of 463 students. The relatively few numbers of students classify the programme as a "low enrollment course". Because of the low enrollment, it is conceivable that the programme could be abolished altogether or the scope of the programme reduced. To those groups interested in promoting the study and teaching of anthropology in the high school, this development causes some concern.

How can the Anthropology 30 programme be enhanced to make it more attractive to students and teachers? Certainly the development of teaching units pertaining to various aspects of anthropology would assist teachers in programme delivery. The development of inexpensive, readily available, current resource materials to supplement the primary resources would be of assistance, as would an annotated bibliography of resource materials or a directory of museum, university, and government departments dealing with anthropology.

There are a number of Social Studies topic areas other than topic 6(A) where material dealing with Alberta archaeology would enhance the content. First of all, inclusion of content dealing with prehistoric archaeology in Alberta could be featured wherever native prehistory is discussed. The province has a wealth of prehistoric archaeological features, including buffalo kill sites, tipi rings and cairns, tool-making and camp sites, and rock carvings and paintings. All are of cultural significance and a study of the importance of any one of these features in telling us more about native lifeways would be of benefit.

In Grade 5, the exploration and settlement of Canada is discussed. Alberta was home to a number of fur trading posts, N.W.M.P. posts, missions and pioneer settlements, many of which have been or are currently being excavated by Alberta archaeologists. The information gleaned from these excavations tells us much about the daily activities of such settlements not dealt with in available historical records.

In the fifth grade, industrial development in Canada is studied. Alberta was the location of much industrial activity early in its history. Much of this activity is being brought to light through archaeological investigations at sites such as the abandoned townsite of Lille where coal was once mined and processed into coke. If we want to understand the evolution of Alberta's economy thoroughly, the consideration of now extinct industrial activity through archaeology is worth examining.

In the grade seven, elective A - "Focus on the Anthropologist" - ancillary material could be developed dealing with the role of the archaeologist in anthropology. Material pertaining to archaeology training in Alberta could be added to encourage pupils to consider social science as a career option.

Some conclusions have been reached in this brief examination of archaeology content. First of all, most of the content relating to archaeology revolves around the study of Mediterranean and Mesoamerican archaeology, which usually involves the examination of ancient civilization. This effectively excludes any concentrated study of Alberta archaeology, which is involved primarily with precontact native remains and a few historic sites. The concentration upon ancient civilization may also indirectly reinforce the notion that archaeology is "treasure hunting", and that archaeology implies the unearthing of stone monuments, gold and jewels, and other exotica. Although the study of Mesoamerican aboriginal civilization is included, study of the aspects of "barbarism" of certain societies (e.g., the Aztecs), coupled with the notion that all of these native cultures crumpled in the face of "superior" European technology, may unwittingly reinforce the notion that European culture is superior to, rather than different from, native culture. The study of Greek and Roman civilization to the exclusion of Alberta-based native culture further reinforces this stereotype.

Another concern about archaeology content pertains to the misconceptions, and, in some cases, inaccuracies, in the materials currently available to teachers through prescribed and recommended resources. While many of these problems are minor, they nonetheless confirm the necessity of involving archaeology professionals in the development and monitoring of instructional materials dealing with anthropology and archaeology. A story such as "Being a Spare-Time Archaeologist" should never have been allowed in an elementary textbook.

One final observation pertains to the methods used to teach archaeology. In almost every instance where archaeology content is presented, little guidance is provided to the teacher to facilitate the preparation, gathering and utilization of instructional materials pertaining to archaeology. More detailed teaching units and annotated bibliographies are required to assist teachers in presenting archaeology content. Inservice training in some aspects of archaeology would also facilitate programme delivery.

CONCLUSION

The findings of the Needs Assessment not only confirmed the necessity of having an educational consultant on staff, but also served to assist the Archaeological Survey of Alberta in identifying and priorizing the educational initiatives that should be undertaken over the next few years.

In order to promote the inclusion of archaeology content pertaining to native prehistory, representatives of the Archaeological Survey of Alberta met with members of the Native Education Project Team, Alberta Education in March of 1985 to discuss what role the Archaeological Survey of Alberta might play in the development of instructional materials dealing with native peoples. It was decided that the writer would, on request, act in a consulting capacity to curriculum development teams designing instructional materials under the auspices of the Native Learning Resources Project. At the time of writing, the author is affiliated with two teams (Lac La Biche and Morinville) and is providing research assistance to other groups as well.

As was mentioned earlier, the writer is submitting a proposed scope and sequence for the treatment of archaeology to the Social Studies Curriculum Co-ordinating Committee of Alberta Education. Should the proposed content be viewed favourably, it is expected that representatives of the Archaeological Survey will be requested to assist in the development and field testing of suitable instructional prototypes for use in the curriculum.

The writer is also working cooperatively with educational personnel of the Historic Sites Service to assist in the development of on-site interpretive programmes and related informational packages dealing with Alberta archaeology. It is hoped that activities involving archaeological excavation (either real or simulated) and experimental archaeology (e.g., stone tool construction, preparation of foods and crafts) will become an integral part of the on-site programmes at facilities such as Head-Smashed-In Buffalo Jump and Strathcona Archaeological Centre. To promote the visitation of historic sites, education personnel have actively represented the Historical Resources Division at teachers' conventions, subject-specialist conferences, and professional development days.

The curriculum initiatives of the Archaeological Survey of Alberta, while far from complete, are nonetheless generating a great deal of positive attention from the educational community. It is hoped that the programmes currently under development for the public at large will be met with equal enthusiasm.

BIG MEN - BIG HOUSES?
THE INTERPRETATION OF ARCHAEOLOGICAL ARCHITECTURAL REMAINS, DUNVEGAN

By
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INTRODUCTION

Archaeologists have always been interested in various aspects of settlement archaeology, such as how settlements are ranked within a larger regional framework, how such ranking can be detected in attributes of material culture, and what factors are responsible for settlement rank. Historical archaeologists in western Canada have only recently begun to investigate this problem with artifact remains, and rarely, if ever, with architectural remains. This is somewhat ironic because at many sites, the architectural data are much more complete than other types of data, yet the application of this information to broader anthropological questions has not been considered. The purpose of this paper is to demonstrate how architectural remains from fur trade sites can be applied to examine problems in regional ranking and settlement. The examination of the archaeological remains recovered from the 1878-1918 Hudson's Bay Company Factor's House, Fort Dunvegan, Alberta (Figure 1), together with a thorough understanding of its place in the regional hierarchical fur trade system, is a potentially valuable setting to examine the relationship between regional hierarchical settlement systems and variability in the form of material culture patterning as reflected in those architectural remains.

As part of my research for the Archaeological Survey of Alberta, and for my dissertation dealing with inequality in the fur trade, I have begun to examine just how we might use architectural evidence to investigate this problem. The opportunity to address these questions at Dunvegan has arisen in the past few years with the investigation of the later fort site and the recovery of the architectural data from the Factor's House and other related buildings at the site. In this report,

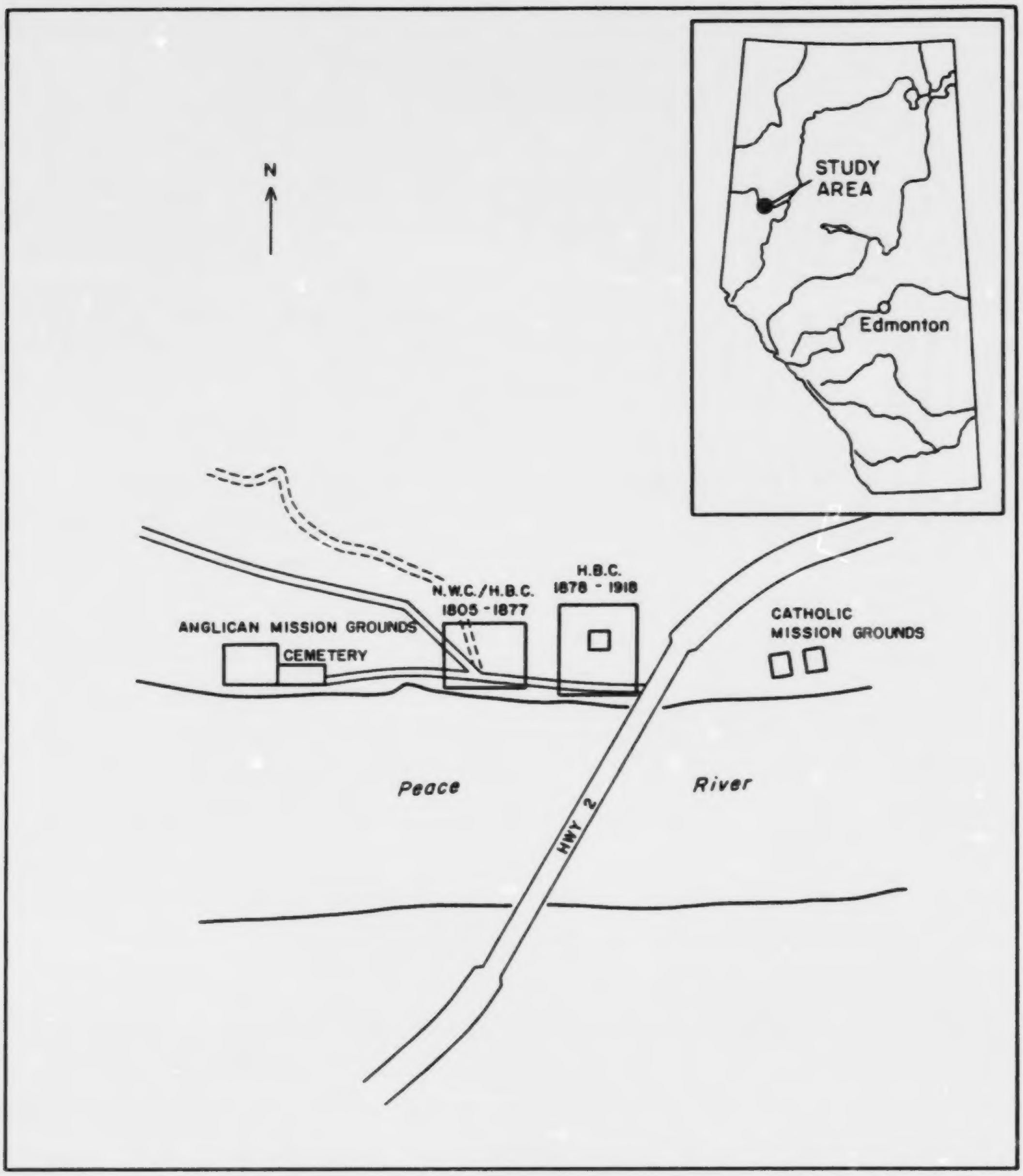

N
STUDY AREA
Edmonton
H.B.C. 1878 - 1918
N.W.C./H.B.C. 1805 - 1877
ANGLICAN MISSION GROUNDS
CEMETERY
CATHOLIC MISSION GROUNDS
Peace
River
HWY 2

Figure 1. Location of historic Dunvegan, Alberta.

I will briefly describe those remains, along with the documentary evidence, and how they differ from the earlier Fort Dunvegan Factor's House. However, before I describe and interpret the significance of those remains, I would like to briefly outline the more broad methodological approaches which have been taken to explain the role that material culture plays in past cultural systems. As well, the place of Fort Dunvegan in the broader regional historical context will be outlined, since this supplies some of the important controls that are necessary to examine these archaeological remains and their role in a larger cultural context.

THEORETICAL CONSIDERATIONS

Much has been written in the past few years about the role that material culture plays in past societies. Some of the research has been conducted on what types or what attributes of material goods are used for reasons other than purely utilitarian-functional (Justeson 1973; Wobst 1977; Sackett 1982; Wiessner 1983). The variability in the form of these attributes is commonly referred to as style and, in the last few years, has been specifically referred to as iconological style (or that formal variation of objects which serves a purposeful symbolic role in society [Sackett 1982:59]). Many objects have just that little extra bit of embellishment, for example, which really is unnecessary to make them function properly. Sometimes that embellishment is increased while other, functional attributes remain the same, but the object still does not perform its function any better. It is of considerable importance for archaeologists to determine and understand which types of formal variability are related to various social or economic factors present in society.

Archaeologists have had relatively good success in demonstrating that many non-utilitarian stylistic attributes of material culture have symbolic content, acting as a form of communication or a social language. Wobst (1977) and Wiessner (1983), for example, argue that some stylistic variability in design is the consequence of the need to visibly denote group membership or exclusion. Justeson (1973), on the other hand, went so far as to infer that those attributes that are used as a social language might have an entirely different structure than those attributes which are primarily functional. Many of these inferences regarding stylistic variability in material culture are often difficult to test unless both the social and historical contexts are relatively well known and documented. In my view, historical archaeology offers a set of conditions (i.e., a well documented historic record and an associated set of material culture) which are often very suitable for examination of these questions in greater detail.

Until recently, very little work has been conducted to determine just what types of attributes and how much variability in the form of material culture might be related to social stratification in society. In historical societies, in an age where many products were mass-produced, this topic is often quite difficult to investigate. But, despite the fact that many items were mass-produced, they still have a range of variability and a rate of change which clearly is related to the need for members of society to differentiate themselves from others (Pyszczyk 1985; Douglas and Isherwood 1979). While research into this topic is continuing in order to determine more precisely how historic mass-produced objects were used in stratification, very little work has been conducted on how architectural remains might also reflect differences between members of society.

In order to examine the variability in architectural style in historic societies, there are a number of important questions which must be addressed. Some of the most important of these include:

1. Which attributes of architectural remains are related to differences in rank?
2. How well do these attributes reflect the relative rank, especially in situations where rank changes temporally?
3. Do these attributes have a different structure than other, functional attributes of architectural remains?
4. Under what conditions do these attributes become important in past societies?
5. In relationship to #4, there is a conscious effort to demonstrate inequality and rank with these attributes, or are they simply the consequence of greater access to more income and wealth?

These questions and their implications for understanding variability in the form of architectural remains in historic archaeology are investigated in the remainder of this paper.

Dunvegan and the regional fur trade settlement system are quite suitable for examining the above questions. The historic context and sequence of events of Dunvegan in the Athabasca fur trade are well documented. Both historical documents and archaeological data are available to examine the role of material culture at a regional level. In the remainder of this report, I will describe Dunvegan in historical context and the architectural remains examined thus far. I will then address the above questions regarding architectural remains with the available results from Dunvegan.

DUNVEGAN IN THE ATHABASCA FUR TRADE

A brief review of the fur trade in the Athabasca district and the structure of the corporate system of the fur trading enterprises is essential for interpreting the variability in architectural remains at Dunvegan. Much of the documentary history and structural description of the Factor's House is taken from Babcock (1985). The implications of the historical and structural data are elaborated upon with the intention of defining some key criteria that identify ranking and changes in ranking in the archaeological record.

Much of the early history of the Athabasca district is connected with the history of the fur trade. The quest for furs was the primary reason for the movement into and settlement of the area by white men during the late 1770s. From that time on, the region was exploited for its fur and game resources by several fur trading companies, but primarily by the Hudson's Bay and North West Companies from the 1780s to 1821. The region was systematically exploited by placement of a series of fur trade forts along major rivers which served as transportation routes. Furs were shipped east to Hudson Bay and to Lake Superior, and provisions were brought inland, as far as New Caledonia. Prior to 1821, the North West Company had, by far, the most fur trade posts in the Athabasca region and generally monopolized the fur trade there; this monopoly was only challenged by the Hudson's Bay Company after 1815.

The period of competition between the major fur trade companies before 1821 resulted in an overabundance of forts and employees; this situation was more prevalent in the North West Company than in the Hudson's Bay Company. There was a constant struggle to expand the fur trade into new regions which had not yet been exploited by the rival company. Although this intense rivalry was much more prevalent in the Saskatchewan district during the late 1700s and early 1800s, it was also to some extent occurring in the Athabasca district. In the early 1800s, the North West Company saw a need to expand westward along the Peace River into unexploited territories to establish the fur monopoly before the other companies did. During this expansionist era in the fur trade, Dunvegan was opened in 1805 as a fort along this westward drive which would become essential to provision the fur trade further west in the interior of British Columbia. Dunvegan replaced the old Fort Fork near the present city of Peace River, as the major fur trade fort in the Peace River area.

Like any good corporate system, the fur trade was organized in a regional hierarchy, with a series of forts which ranged in their relative importance within the system. At the lowest level were the provisioning posts, such as Nottingham House, which were nothing more than temporary settlements and were often moved. Then, there were the relatively more stable and important fur trading forts, such as Dunvegan, each usually run by a chief trader who, because he retained shares in the company, had a vested interest in his fort and the trade in his district. Finally, there were the regional headquarters, like Fort Chipewyan, large, pretentious and run by a chief Factor, the most powerful man in the district. Although Fort Dunvegan was an important fort while it was occupied by the North West Company and by the Hudson's Bay Company after amalgamation in 1821, it was only one of a series of area forts that served to carry out the trade and provision other posts; it was by no means the most important fort in the Athabasca district. Both prior to and after amalgamation, that honour went to Fort Chipewyan which was the headquarters of the Athabasca district, and thus was the most important, most prominent fort in the region. It was the redistribution centre for all goods and provisions that were to be shipped to all the forts in the Athabasca district and it controlled the flow of furs east. Presumably, the relative ranking of these forts should be reflected in their architectural remains; this will be dealt with in more detail later in the paper, when variations in the attributes that reflect rank are examined within the forts and between fur trade posts.

Aside from comparing the architectural remains from each of the three types of forts, to gain insight on ranking, we can also examine the problem of changes in the relative rank of a fort. The events that took place after 1821 in the Peace River district and at Dunvegan are certainly suitable for this investigation. After amalgamation of the two companies in 1821, Fort Dunvegan's population was reduced considerably, like many other posts. The Hudson's Bay Company maintained the fort on the original North West Company site, and it became an integral cog in the operation of the Athabasca fur trade. The fort continued to function as an important fur trade and provisioning post, within the larger hierarchical fur trade structure of the Athabasca district.

By the mid-1870s, a number of very important events took place which eventually led to a change in the relative importance of Dunvegan in the regional hierarchical structure of the fur trade. A new route was proposed for the transportation of goods to the Peace River posts. It was suggested that the old Methy Portage route, involving Fort Chipewyan as the principal provisioning depot, be abandoned for the western posts on the Peace River. Instead, goods were to be routed by cart from Fort Garry to Edmonton, from Edmonton to Athabasca Landing, and then from the Slave Lake posts to the Peace River by York boat (Babcock 1985:3). The result was that Chipewyan became less important, losing its control over the Peace River fur trade.

It was at this same time, in 1878, that it was recommended that the Athabasca district be divided and reorganized, creating a new district on the upper parts of the Peace River. Forts in this new district included the posts at Hudson Hope, Fort St. John, Dunvegan, Smoky River, Battle River and the Lesser Slave Lake posts (Babcock 1985:4). A resolution was passed by the Council of the Northern Department of the Hudson's Bay Company, that Dunvegan become the principal headquarters for this new district (Minutes of the Council, Northern Department 1878, Hudson's Bay Company Archives B.154/K/1). This led to some new buildings and refurbishing of old buildings at Dunvegan. For the next eight years, Dunvegan played a key role in the distribution of goods and the administration of other posts further west along the Peace River. However, this new position did not last long. By 1886, Lesser Slave Lake became the headquarters for the Peace River district, and Dunvegan again became a less important fur trade fort.

INEQUALITY AND SOCIAL CONDITIONS

The corporate structure of the Hudson's Bay Company was vertically aligned, and ranking played an essential role in carrying out the company's economic goals. Changes in the company's structure and goals meant that the degree of ranking changed considerably throughout the fur trade (Brown 1980). A brief summary of those changing conditions is included here because these changes did have some implications for the emphasis placed on material culture to symbolize rank and position. I will briefly outline those economic and social conditions and then discuss the possible implications they have on variability in architectural remains in the fur trade.

After the Hudson's Bay Company and the North West Company amalgamated in 1821, the fur trade corporate system was essentially restructured by George Simpson, the governor of the new enterprise. Simpson introduced many changes that were to make the company very rich and profitable over the next 30 years; however, these changes also began to create tensions within the fur trade company. For example, the total numbers of forts and employees were reduced considerably to decrease the overhead of the company. Competition for the remaining positions became increasingly more prevalent. After the 1850s, fur resources began to decline, reducing the overall profits of the company considerably. There was unrest among the lower ranks of employees as the price of goods steadily increased, yet the wages were not increased accordingly. This led to an increasing awareness of social positions and rank in fur trade society.

There was also an increase in competition within the upper ranks of the company over the remaining positions and fur trade areas from which they derived part of their profits. Simpson, for example, notes that chief factors tried to place more distance between themselves and chief traders, a clear sign that there was increasing emphasis on identifying rank and position in the fur trade:

> I regret to observe that a considerable degree of reserve approaching to coolness appears to exist between the Chief Factors and the Chief Traders, arising in my opinion from the circumstance of the former being desirous to make a wider distinction in the rank than is either necessary or proper... The Traders as a matter of course have no voice in our Councils and are not permitted to be present, in fact they are totally ignorant of our proceedings except in so far as may be as a matter of favor communicated to them privately (Fleming 1940:381).

These tensions certainly were felt at the regional level and apparently in the Athabasca fur trade district. Dunvegan was often involved in boundary disputes with other forts, involving undercutting by paying more for furs, or by trying to take goods meant for other forts to increase their trade. For example:

> ... all my sanguine expectations of turning this Post to advantage have been blasted by a malignant contagion which has carried off upwards of one fourth of the Natives of this Post and with them has vanished a large proportion not only of the Returns of this season but of years to come (William MacKintosh, Dunvegan to Edward Smith, Fort Chipewyan, May 4, 1823; H.B.Co. Archives, Reel IM176, B.39/b/2).

Smith warns MacKintosh of the dangers of making such remarks about Hugh Faries: "... how galling it will be to that Gentleman to find you differ so much with him. Think what you are about. So much jarring will be prejudicial to us all" (H.B.Co. Archives, Reel IM176, B.39/b/2).

Later, in 1832, MacKintosh complains again to John Charles about rivalry:

> I regret to say that the worst kind of opposition still continues between LSL and the posts of this River. The Saskatchewan trappers not only make their hunts but actually carry on a traffic with our Indians almost at our door and this they are better able to do as we do not possess the means of supplying our Indians (William MacKintosh, Dunvegan to John Charles, Fort Chipewyan, November 1832; H.B.Co. Archives, Reel IM176, B.39/b/5).

Dunvegan, however, was not always on the receiving end, as is clearly demonstrated by a statement made by Robert Campbell, Fort Chipewyan, to William Shaw, Dunvegan, in 1860:

> A complaint has been lodged with Sir. G. Simpson "by the Gentlemen of New Caledonia that we pay a much higher price for furs at Dunvegan than are given in New Caledonia - and that the Returns of St. John are almost entirely drawn from New Caledonia" (H.B.Co. Archives, Reel IM177, B.39/b/16).

The relative importance of fur trade articles is quite evident in the following reference: "CT MacDougall says you took to Dunvegan against his wish all of the Canada L'assomption belts, painkiller, lung balsam etc. intended for Verm. and Red R.! Send them back". (MacFarlane to D. Ross, Dunvegan, Jan. 14, 1876; H.B. Co. Archives, Reel IM1042, B.39/b/20). There is little doubt, therefore, that competition existed between the various regions and fur trade forts. Chief traders were jockeying for more power and profits in their respective regions. The fur trade posts they controlled were visible signs of that power and the associated rank, both to their European counterparts and to the Indians in the region.

MEASUREMENT

Before examining the architectural remains at Dunvegan, the attributes which are expected to be connected to rank and inequality are briefly discussed. In general, individuals use wealth and resources to carry out their social and political aims; wealth, therefore, can be transformed into concrete things which can be used to show social differences. Consequently, the following architectural attributes, because they are either labour intensive or require money, might be important indicators of rank and inequality: 1) building size, because more materials are used and more labour is needed; 2) building partitioning, requiring more labour and materials; 3) close proximity, or only one building for all ranks, taking less labour and materials; 4) variations in construction techniques; and, 5) quality of construction materials used.

SUMMARY AND IMPLICATIONS

The history of Dunvegan, and its changing role in the fur trade, is a good opportunity to investigate the relationship between settlement rank and architectural attributes. If material culture is important to mark rank, then, as the relative importance of Dunvegan increases, there should be a corresponding increase in some architectural attributes. Furthermore, Dunvegan provides us with a unique opportunity to examine the underlying reasons that may have been responsible for this change. Primary economic factors (i.e., increasing profits from the fur trade) are inadequate to account for changes in architecture, because Dunvegan became a regional headquarters at a time when the profits from the fur trade were already declining. This involved rebuilding and refurbishing at the fort. Unlike the hey-day years (1821-60) of the fur trade, the investment of more money into the fort at this time would likely be primarily due to social and political reasons. The documented changes in architectural remains will be examined in order to further investigate these reasons.

RESULTS

The first step in this analysis consisted of establishing whether the architectural attributes that were chosen to measure rank were present at other western Canadian fur trade posts. A number of fur trade posts, with historically well documented ranks, were selected from both the published and unpublished literature (Fladmark 1976; Ranere 1973; Losey and Pyszczyk 1978; Babcock 1983, 1985; MacDonald 1959; Losey et al. 1977; Heitzmann 1979). The survey indicated that architectural attributes are related to rank in varying degrees, as is shown by the results in Table 2. When the architectural remains of the three basic types of fur trade forts (i.e., minor wintering posts, fur trade posts, district headquarters) are examined, the following trends begin to emerge:

1. As fort rank increases, the relative size of the living quarters for both officers and men increases, but at a proportionally greater rate for the officers;
2. As fort rank increases, the number of rooms for distinct activities (e.g., sleeping, eating, etc.) for the officers and men increases, but at a proportionally greater rate for the officers;

Table 2. Comparision of fort rank and architecture.

FORT TYPE	OFFICERS' QUARTERS			MEN'S QUARTERS(1)			OFFICERS-MEN PROXIMITY (# of forts)	
	Area (ft^2)	Range	Rooms	Area (ft^2)	Range	Rooms	attached	separate
Wintering Posts	206.6	133.6-279.6	1	136.9	77.4-196.4	1	2	0
Fur Trade Posts	1166.3	216-1772	2-5	287.7	72.2-363.4	1-2	3	8
District Headquarters	3628.3	1964-5293	5-9	422.8	314.8-530.7	1-2	0	2
Dunvegan (pre-1878)	1240	-	5	331.2	-	1-2	separate	
Dunvegan (post-1878)	1552	-	5	300	-	1-2	separate	

Wintering Posts = Nottingham House, Wedderburn

Fur Trade Posts = St. Mary's, Carleton, George, Buckingham House, Augustus 2 (N.W.Co.), Augustus 2 (H.B.Co.), Rocky Mt. House (N.W.Co.), Rocky Mt. House (H.B.Co), Epinette, Fork, Victoria, Jasper House

District Headquarters = Chipewyan, Augustus (Edmonton)

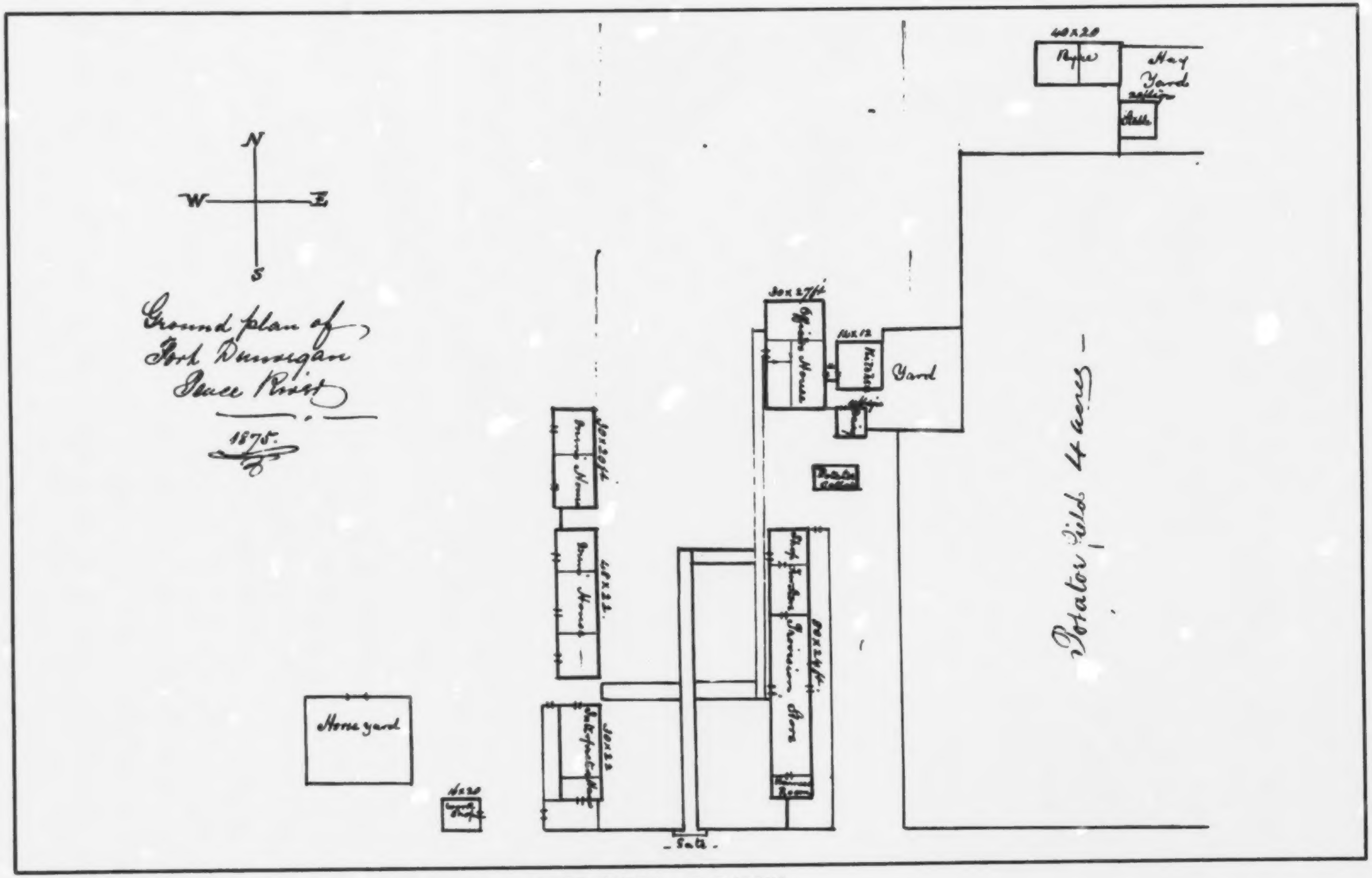
NOTE 1. Both the labourers' and tradesmen's quarters are listed under "men".
2. Quarters are defined as that space where the individual or family carries out most of their activities. Often quarters were shared by the men, causing greater crowding than is apparent in these figures.

3. As fort rank increases, in the majority of cases, there is a greater spatial separation between the officers and the men, i.e., officers and men live in separate buildings;
4. The quality of construction of those fort buildings also increases as fort rank increases. For example, at Fort George, logs were squared or walls were more heavily mudded for the officers' houses than for the men's quarters.

Presumably then, these attributes should be sensitive to changes in rank at Dunvegan. In order to more closely examine these attributes, the data from Fort Dunvegan will be examined next.

FORT DUNVEGAN

How do the architectural remains at Dunvegan compare to the other forts, both before and after 1878, when Dunvegan became regional headquarters for the Peace River district? A map of the first Fort Dunvegan, prior to becoming district headquarters (Figure 2), shows that the main floor of the officers' quarters, including the kitchen attachment, is approximately 978 square feet, slightly below the mean but within the range of officers' quarters at other fur trade forts. The documents also indicate that the building had a second storey; roughly one third of this area was a room for the Factor while the rest was used for storage. This brings the area figure to 1240 square feet, shared by the Factor and the other officers of the fort. The mean area for the men's quarters at the early Dunvegan is 331.2 square feet, which is slightly higher than the mean of the other forts, but again well within the range (Table 2). The numbers of rooms for both the officers and the men fall within the range for fur trade forts (Table 2). As well, the officers' and the men's quarters were separated at the early fort. To date, archaeological investigations of the early fort are too preliminary to comment on the type or the quality of construction of the officers' and the men's quarters, although the journals indicate that a great deal of work and material went into the Big House, especially Mr. McLeod's quarters which had two fireplaces and was heavily mudded (PAC MG 19, E1, Vol. 24).



N
W
E
S
Ground plan of
Fort Dunvegan
Peace River
1875
40x20
Hay
Yard
Stable
30x27 ft
Officers House
16x12
Kitchen
Yard
Potatoe field 4 acres
30x20 ft
Men's House
48x22
Men's House
80x24 ft
Shop
Provision Store
30x22
Horse yard
16x20
Gate

Figure 2. Ground plan of Fort Dunvegan, 1875 (HBCA, G.1/283).

The documentary evidence indicates that material for the new fort buildings was purchased sometime in 1877 and construction began in 1878 (Babcock 1985:4-8). A map of the fort, drawn by McDougall in 1891, indicates that the fort layout and the buildings changed considerably (Figure 3). The most dramatic of these changes involved the officers' quarters. This structure was 1552 square feet (including the kitchen) and had five separate rooms or activity areas. Although these figures are below those obtained from the other regional headquarters in the sample, they are approximately 20% higher than prior to 1878. As well, only the Factor lived in this residence, giving him relatively more room than in the old residence. Perhaps more interesting, however, is the fact that the new importance of the fort does not seem to have made any difference in the quality of the men's quarters. In terms of space and rooms, the men's quarters did not change at the new Fort Dunvegan. In fact, the former men's quarters were still being used. Furthermore, in the new fort layout, the men were well separated from the Factor's residence (Figure 3).

A comparison of the quality of construction of the new Factor's House and the former Factor's House cannot be undertaken at this time because of insufficient data. However, it is possible to examine the later Factor's House and make a few observations regarding construction quality, since it is still standing today (Figure 4). It is a unique building because, unlike the former Hudson's Bay Company buildings, it had dove-tailed notching instead of the vertical post-on-sill technique traditionally used by the Company. This type of construction technique required much more skill, time and labour investment. The additional fixtures and interior of the building also attest to better quality.

The archaeological investigations conducted in 1985 substantially reinforce the above statements regarding the amount of labour and resources invested in the new Factor's House. Prior to excavations, it was believed that the Factor's House foundations would be similar to those found at other buildings at Dunvegan. The foundation remains of trading store-warehouse exposed in 1984 provide a good example (Figure 5). Most building foundations at Dunvegan are constructed of sandstone slabs which are found nearby in the valley. The building sill logs are placed on these foundations, producing a solid footing for the

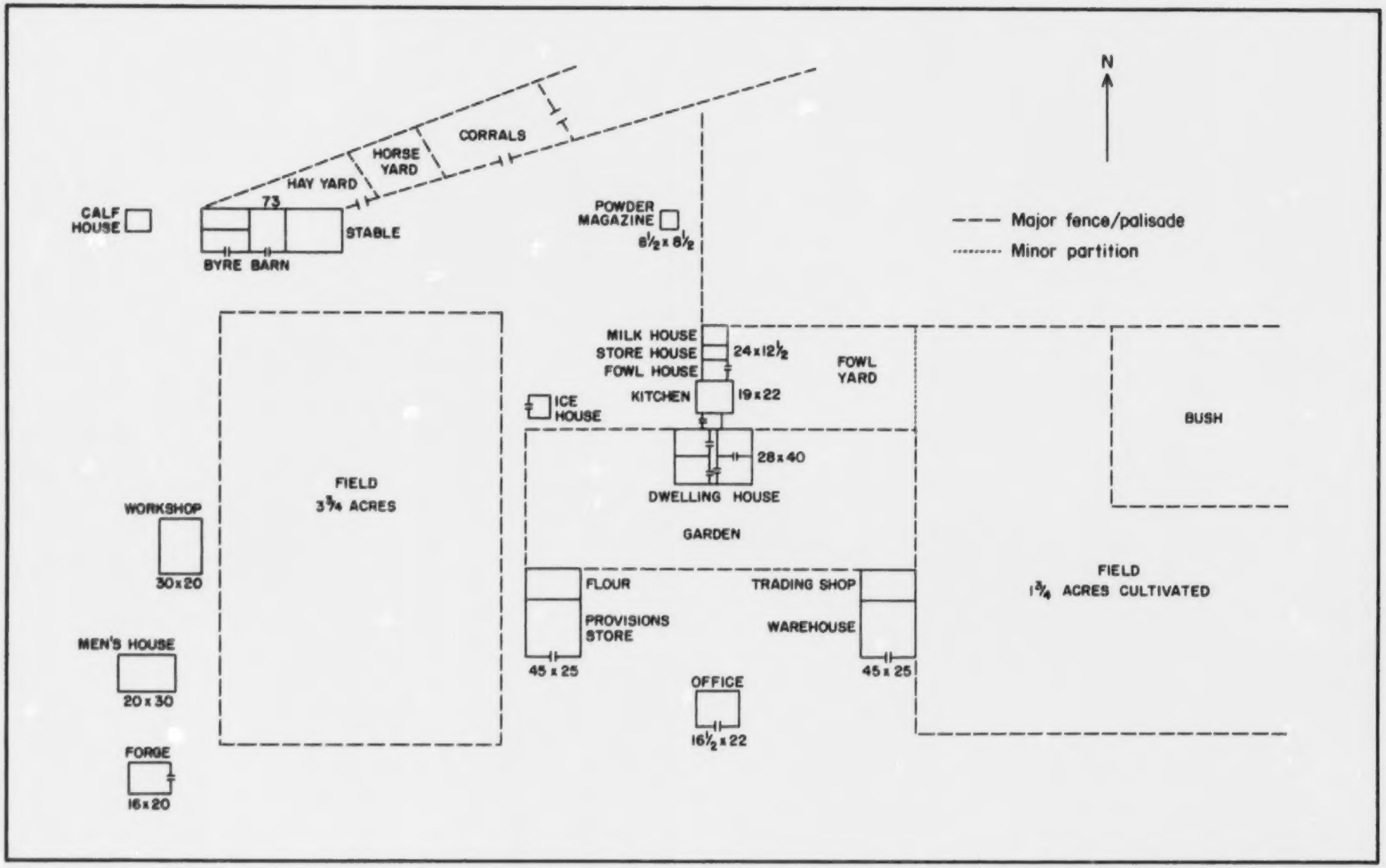

N
Major fence/palisade
Minor partition
CALF HOUSE
HAY YARD
HORSE YARD
CORRALS
73
STABLE
BYRE
BARN
POWDER MAGAZINE
6½ x 6½
MILK HOUSE
STORE HOUSE
FOWL HOUSE
24 x 12½
KITCHEN
19 x 22
FOWL YARD
ICE HOUSE
BUSH
28 x 40
DWELLING HOUSE
GARDEN
WORKSHOP
30x20
FIELD
3¾ ACRES
FLOUR
PROVISIONS STORE
45 x 25
TRADING SHOP
WAREHOUSE
45 x 25
FIELD
1¾ ACRES CULTIVATED
MEN'S HOUSE
20 x 30
OFFICE
16½ x 22
FORGE
16x20

Figure 3. Hudson's Bay Company Fort Dunvegan, 1891 (redrawn from HBCA, B.56/e/4).

Figure 4. Views of present-day Factor's House.

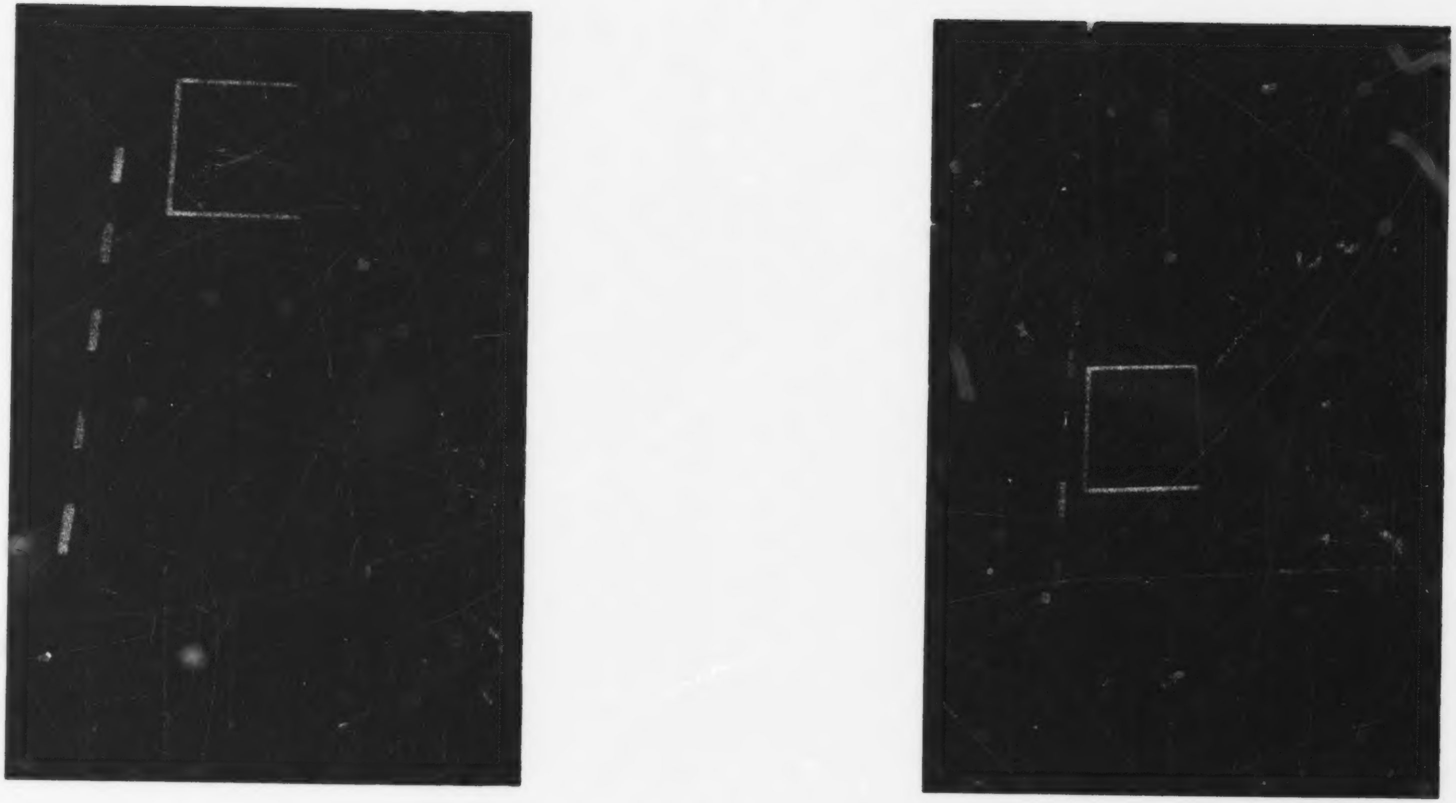


Figure 5. View of sandstone foundation remains of the trading shop-warehouse, Dunvegan.

structure. Excavations of the trading store-warehouse exposed four courses of sandstone foundations which were placed in a trench about 30 cm below the surface of the ground. Undoubtedly, there would have been more courses of sandstone, but they were removed when the building was dismantled.

The sandstone foundation of the Factor's House, however, was of superior construction and quality (Figure 6). The foundation footing was at least 75 cm in depth, and was placed in a trench that was roughly 50 cm below the original ground surface. At least seven to nine courses of sandstone were laid down to support the corners of the building, and there are slightly fewer near the centre of the structure (Figure 6). Although no extensive tests have been conducted to establish the potential load that such a thick foundation could support, it is presently felt that it is much greater than would be needed for the Factor's House. According to the Historic Sites Service restoration architects working on the building, there is only 1 cm difference in elevation along the sills of this structure, attesting to the quality of the construction of the foundations. The fact that the building is still standing today further supports this contention.

DISCUSSION AND CONCLUSIONS

From the available architectural evidence gathered at Dunvegan and other fur trade forts in western Canada, there is every indication that some forms of material culture are closely associated with occupational rank and fort rank. In some cases, the range of these attribute forms far outreaches their purely utilitarian function. As soon as Dunvegan become district headquarters, McDougall suggested new buildings be built because of the poor condition of the old fort buildings. However, McDougall failed to include the men's quarters in this rebuilding phase; these buildings were just as old and in need of repair as the others at the fort. It is quite evident, therefore, that the investment of additional labour and resources into a more elaborate Factor's House and warehouses was considered to be more important than improving the living conditions for the men.

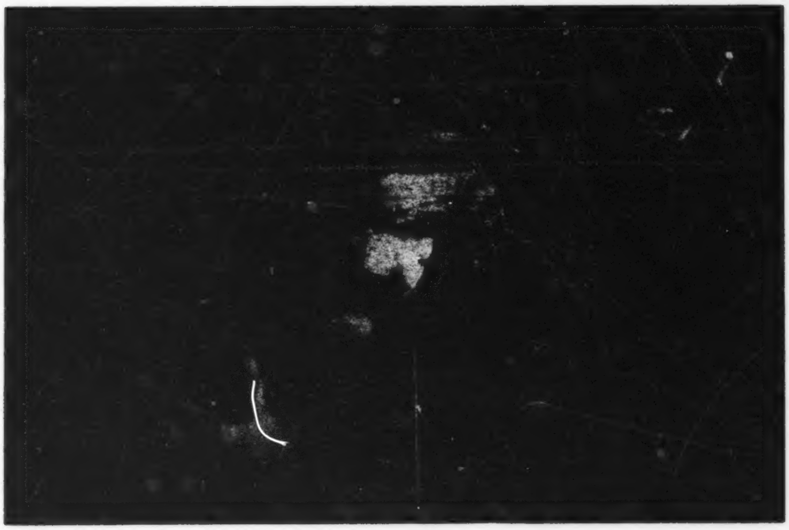


Figure 6. Foundation remains of 1878-1918 Factor's House, Dunvegan. Upper photo shows northwest corner foundation; lower photo shows section of foundation along the west wall.

A comparison of the sizes of the new warehouses to the old warehouses, demonstrates that they increased in size by only approximately 15%. On the other hand, the total area of the Factor's House increased by roughly 20% and the entire complex (storehouses, hen house, milk house) increased by 28%. The difference between the warehouse and Factor's House figures indicates that more emphasis was placed on the Factor's residence, likely because it served as the major status marker denoting the new importance of Dunvegan and its factor. It is obvious that McDougall's stated reasons for constructing new buildings (because the old ones were in disrepair), while not entirely false, may only be revealing part of the story.

I would suggest, therefore, that the most important underlying reasons for construction of a more elaborate, prominent Dunvegan at this time were social and political which, of course, were economically motivated. It certainly was not due to an increase in profits of the region in the latter part of the fur trade, resulting in a greater investment of that wealth in fort buildings, such as occurred at Fort Edmonton in the 1830s. There is every indication that there were tensions within the fur trade and competition between various districts for the declining quantities of furs. The need to visibly display rank and power to competitors, as well as to customers, was probably an important consideration for the investment of money into the construction of the new buildings at Dunvegan.

The architectural attributes that are most sensitive to mark differences of rank within forts and between forts are all related, either directly or indirectly, to money. Building size, partitioning, the quality of materials and workmanship, all cost proportionally more as these attributes increase. At the smaller, less important forts, these attributes are all less prominent. It is interesting to note as well that, as the rank of the fort increases, a proportionally greater amount of wealth is invested in the buildings of the upper occupational ranks. Even at Chipewyan and Edmonton, the quality of the men's quarters increases only slightly when compared to the Factor's residence. Additional research is presently underway to determine whether differences in these various architectural variables of fur trade forts exist between the major fur trade companies, through time and between fur trade districts; this represents an attempt to find any significant patterns in the degree of inequality between occupational ranks and forts.

The results of this study, as well as continuing research of fort architecture, have some implications for how the relative importance of the settlement might be apparent in an archaeological context. In the majority of cases, forts become considerably larger in size as their rank increases. The relative size and number of buildings also increases, since the fort needs more space for storage of supplies and furs. Such evidence would be quite apparent in an archaeological context. But perhaps the most revealing indicators of fort importance are the relative differences in the size, number of rooms and quality of construction of buildings for the upper and lower ranks of the settlement. As the relative importance of the fort increases, the relative differences of these attributes between the ranks increases sharply. More wealth and labour is invested in the buildings of the upper ranks in the more important forts. Thus, in an archaeological context, for example, the size of a building related to a higher rank relative to all other buildings in a settlement may be proportionally larger as the relative importance of the settlement increases.

To conclude, the intent of this paper has been to briefly describe what might be learned about inequality from the documentary records and archaeological architectural remains in historical archaeology, using Dunvegan as an example. Further investigation of the architectural remains at Dunvegan and other fur trade sites will undoubtedly yield much more data and information on how this form of material culture is used to express differences in past societies. The next step is to ask why such differences in the use of material culture between various groups and settlements occur.

ARCHAEOLOGICAL INVESTIGATION OF THE FROG LAKE MASSACRE SITE (FkOo-10)

By
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INTRODUCTION

The 1985 archaeology programme at the historic Frog Lake settlement (FkOo-10) was developed as a research project by the author. A proposal was prepared and submitted to the Alberta Historical Resources Foundation for review. The Foundation approved the proposal and provided the total funding required.

The 1985 programme at the settlement site was developed to supplement and expand upon information gathered during site visits by Mike Forsman in 1982 and Heinz Pyszczyk in 1984. Forsman's brief tour of the site detailed impact by pot hunters, while Pyszczyk's three day programme began a detailed plan map which included 15 archaeological features related to the settlement site. Both archaeologists suggested ways to protect the site as well as possible objectives for future projects.

The purpose of the 1985 archaeological investigation of FkOo-10 was to expand the existing data base for the site in order to provide a more comprehensive understanding of the site resources. This project was designed to add substantially to information on the location, identification, extent, nature and research or interpretive potential of these historic resources. This information will be of value to independent researchers studying the 1885 Rebellion as well as to the Historic Sites Service and the Archaeological Survey of Alberta branches of Alberta Culture.

The 1985 archaeology programme at FkOo-10 outlined the following objectives:

1. locate, describe and record historically recorded features which had not been located or mapped by previous work; these include Dill's store, Gowanlock's house, Gowanlock's mill, Quinn's house, Indian Agency warehouse, and any additional features not previously mapped in the settlement area;

2. assess, by test excavation, the extent, nature and research potential of the feature cluster locations representing the Roman Catholic Mission complex (six square metres), and the Hudson's Bay Company complex (six square metres);
3. add to the site map by: a) addition of all features located in Objective 1; b) installation of permanent grid datum markers at key historical feature clusters; c) checking previously recorded feature cluster locations to confirm map accuracy;
4. prepare a documentary report on the site combining all past assessments and recommendations, as well as all of the results, interpretations, evaluations and recommendations resulting from the 1985 project.

These objectives were undertaken during the project and the resulting final report outlined the procedures, results, conclusions and recommendations of the 1985 archaeology programme at FkOo-10. This paper presents sections from the completed final report (85-49) which is on file at the Archaeological Survey of Alberta.

HISTORICAL BACKGROUND

The information presented in this section relies largely upon the personal narratives of William B. Cameron, Theresa Gowanlock and Theresa Delaney. These three individuals lived at the historic Frog Lake settlement and were present and taken prisoner during the massacre. Their stories are contained in a volume of captivity narratives and other accounts of the 1885 North-West Rebellion edited by Hughes (1976).

The settlement was located approximately 3.5 km south of Frog Lake and was adjacent to two large Wood Cree Indian Reserves which bordered the lake. The settlement was a subsidiary of Fort Pitt and contained a number of log structures (Beal and Macleod 1984:189). Although the exact dates and the sequence of building construction are not known, Delaney (Gowanlock and Delaney 1976:210) indicates that her husband spent his first winter (1879-80) as an Indian instructor for the Northwest in Onion Lake, since there were no buildings at Frog Lake. When Theresa Delaney arrived at Frog Lake in 1882, the only buildings were her "... husband's house and warehouse - a shed and a garden." Subsequently, the house and the storehouse of the Indian agent, a sawmill, the priest's house, a school house and a church were built (ibid.:229, 230). She makes no mention of the Hudson's Bay Company buildings, but a local history prepared by the Frog Lake Community Club suggests that the settlement grew around a H.B.Co. trading post which was founded in 1883 (1975:25). Another reference by Delaney indicates that an independent trader arrived at Frog Lake in 1884 (Gowanlock and Delaney 1976:241).

A further description of the settlement is provided by Cameron:

> The settlement of Frog Lake consisted of three main groups of buildings - government, Hudson's Bay Company and Roman Catholic mission; the store of a trader ..., and a small grist mill in the course of construction. There were the dwellings of the Indian agent, farming instructor, interpreter, the North-west Mounted Police barracks, stores, blacksmith shop, stables and outhouses; the Hudson's Bay Company's trading shop, store, dwelling and stable; the mission church and dwelling. The mill and the residence of its builder ... lay some two miles nearer the Saskatchewan than the main settlement (1976:10).

The numbers of people living in the settlement are not definitely known. It is estimated that there were some 30 white, Metis and native inhabitants residing in the community by 1885. The white inhabitants consisted of T. Quinn (Indian agent), J. Delaney and wife (farm instructor), J. Gowanlock and wife (contractor), G. Dill (independent trader), J. Simpson (H.B.Co. trader), W.B. Cameron (H.B.Co. clerk), W. Gilchrist (Gowanlock's clerk), Father Fafard (Roman Catholic priest), J. Williscraft (Fafard's lay assistant), and Corporal Sleigh and six constables (N.W.M.P. detachment). Father Marchand (Roman Catholic priest) was visiting Frog Lake from Onion Lake. C. Gouin (carpenter) and H. Quinn (blacksmith) were referred to as "half-breeds". The Metis known to live in the settlement consisted of J. Pritchard (interpreter), his wife and family, and Simpson's wife and their children. Other Metis, such as Goulet and Nolin, figure prominently in the Frog Lake story, but it is not known where they lived. The only native Indian known to live in the settlement was T. Quinn's wife. As previously mentioned, two large Wood Cree Indian Reservations were located adjacent to the settlement. In late 1883, a band of Plains Cree Indians led by Chief Big Bear were temporarily settled by the government just north of the Frog Lake community.

This then was the setting at Frog Lake in early 1885. There were many conflicts, tensions and justifiable grievances between the Plains and Wood Cree Indians, the whites and the Metis. The uprising which occurred was not sparked by a single incident but rather by many factors. Some of these, according to Hughes (1976:XXV), were ecological and economic changes, the rise of nativistic movements among the Plains Cree, the development of conflict between the colonized and the colonizing, and sheer government ineptitude.

The trouble brewing in the Frog Lake area was aggravated by the uprising at Duck Lake in late March, 1885. When news of Duck Lake became known to the settlers of Frog Lake, there was some discussion of evacuating the community to Fort Pitt. This idea was ultimately discarded, but it was decided that the Frog Lake N.W.M.P. detachment of seven men should leave for Fort Pitt, because it was thought that their presence might cause trouble. The detachment left early on April 1, taking most of the ammunition from the Hudson's Bay store with them. The trouble between Big Bear's band and the government representatives continued, however, largely as a result of a dispute over food rationing. Early on April 2, the movements of all white settlers of the community were controlled by the Indians. With Big Bear no longer in charge of his warriors, they attempted to move the Frog Lake settlers to the Plains Indian camp. During the move, nine men (T. Quinn, Gowanlock, Delaney, Dill, Williscraft, Gilchrist, Gouin, Fr. Fafard and Fr. Marchand) were killed, one man escaped (H. Quinn), and one man (Cameron) and two women (Delaney and Gowanlock) were taken prisoner. The prisoners were taken to the Indian camp.

The bodies of four of the victims were placed in the cellar beneath the church and the earth walls were thrown in on them. Two of the victims were buried in the interpreter's house. Within a few days of the uprising, all buildings in the settlement had been looted and burned down. Soon after the massacre, seven of the nine victims were re-buried in a cemetery near the settlement, and the priests were re-buried in St. Albert.

The settlement site has been abandoned since the time of the massacre. A Federal Government Historic Sites cairn was unveiled on the site by Cameron in 1925, and a sketch map of the settlement was prepared by an unknown person with the assistance of Cameron in 1947 (Figure 7). Finally, a mill wheel from Gowanlock's mill was put on display in Vermilion in 1954 (Edmonton Journal, 10/02/54).

RESEARCH PROCEDURES

The 1985 archaeology programme at FkOo-10 began with pre-field research at the Archaeological Survey of Alberta and the Provincial Archives of Alberta. This research was intended to familiarize the author with all available data, including the site map prepared by Pyszczyk, as well as any archival information related to the development and growth of the Frog Lake settlement.

The field research, consisting of survey and excavation, covered a nine day period beginning on July 15 and ending on July 25, 1985. The author was the archaeologist in charge of the project, and was assisted by two students from the Frog Lake area.

The survey portion of the project began by locating the 15 features delineated on Pyszczyk's 1984 map and the 14 building locations indicated on Cameron's 1947 sketch map. During this process, intensive foot survey was carried out to locate any additional features not shown on the two maps. The additional features were mapped and recorded in relation to Pyszczyk's map or to permanent datum markers which were driven into the ground at specific feature cluster locations. A total of seven permanent datum points were established with 50 cm lengths of reinforcing bar which were countersunk 10 to 20 cm into the ground. These were added to the site map by a qualified land surveyor. The site map resulting from this project includes all of Pyszczyk's features, the additional features located during the 1985 project, the datums and all appropriate land survey information.

The second part of the field programme consisted of test excavations at the Roman Catholic and Hudson's Bay Company feature clusters. The purposes of these excavations (12 square metres in total) was to provide information on the extent, function, nature and research potential of the remains. The excavations were initially conducted by shovel shaving, and reverted to trowel as soon as in situ structural remains became apparent. All excavations continued until sterile deposits were

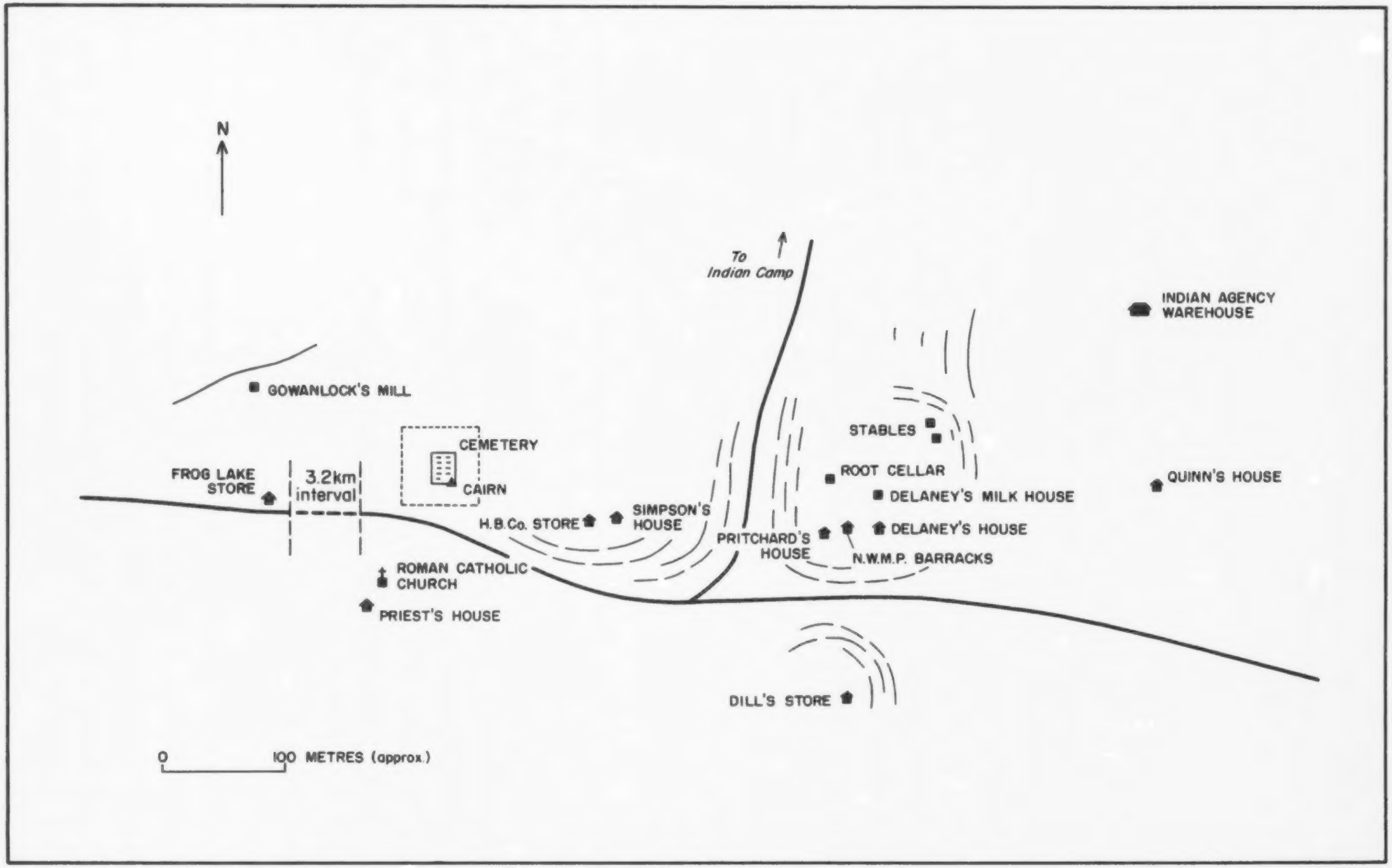
N
GOWANLOCK'S MILL
FROG LAKE STORE
3.2km interval
CEMETERY
CAIRN
ROMAN CATHOLIC CHURCH
PRIEST'S HOUSE
H.B.Co. STORE
SIMPSON'S HOUSE
To Indian Camp
PRITCHARD'S HOUSE
STABLES
ROOT CELLAR
DELANEY'S MILK HOUSE
DELANEY'S HOUSE
N.W.M.P. BARRACKS
DILL'S STORE
INDIAN AGENCY WAREHOUSE
QUINN'S HOUSE
0
100 METRES (approx.)

Figure 7. Sketch map of the Frog Lake settlement, prepared with the assistance of W.B. Cameron in Sept/Oct, 1947. (A.S.A., Alberta Culture, Frog Lake files).

reached. All removed deposits were screened through 6 mm mesh to ensure recovery of artifacts and remains associated with the features. The excavations were recorded by field notes, plan and profile drawings, and photographs. All artifacts and chinking remains were bagged according to arbitrary, cultural or structural levels.

RESEARCH RESULTS

Prior to detailing the survey and excavation results, it is useful to discuss the terms used to describe the various parts of the site. Generally, the site is described according to building groups identified by Cameron in 1947 (Figure 7). The sketch map indicates complexes of buildings which are easily associated with the presence of the Roman Catholic Mission, the Hudson's Bay Company, the Government (i.e., farm instructor, interpreter, N.W.M.P. and Indian agent), the independent trader and, west of the main settlement, the lumber mill. For purposes of reference and description, the features located at FkOo-10 are grouped within these complexes. While future detailed investigations may prove certain peripheral features to have different associations (e.g., Metis cabins), the archaeological features will be assigned to the historically known complexes for the present discussion.

SURVEY OF THE SITE AREA

The 1985 survey of FkOo-10 located 17 archaeological features or artifact clusters in addition to the 15 features mapped by Pyszczyk in 1984. These 32 features delimit the main settlement area (350 m N-S by 600 m E-W) and add the Gowanlock mill to the site (Figure 8). The 1984 and 1985 surveys of the site both occurred during July, when the vegetation is very dense. The features were often overgrown with dense vegetation and, therefore, most are not recorded by photography. It is probable that further survey during spring or fall would locate additional features associated with FkOo-10.

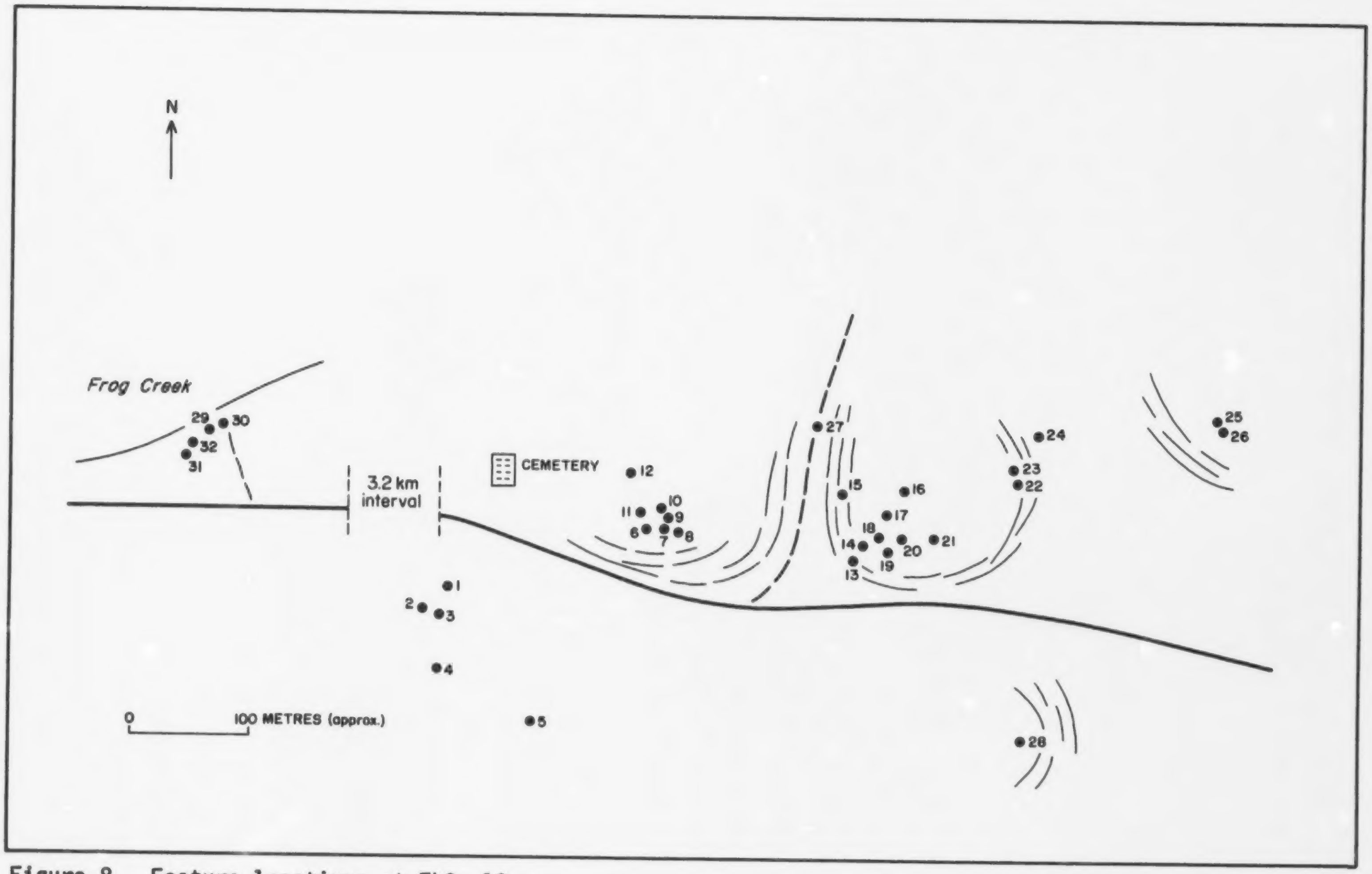
N
Frog Creek
29
30
32
31
3.2 km interval
CEMETERY
12
11
10
9
6
7
8
1
2
3
4
5
27
15
16
17
18
14
20
21
13
19
24
23
22
25
26
28
0
100 METRES (approx.)

Figure 8. Feature locations at FkOo-10.

Roman Catholic Mission Complex

There are five features associated with this complex (Figure 8, Features 1-5). They consist of two overgrown circular depressions and one overgrown circular mound located within provincially designated land on the south side of the road which bisects the site. One shallow circular depression and one historic artifact cluster are located in a privately owned cultivated field south and east of the designated area.

The depressions referred to as Features 1 and 2 correspond to Cameron's map of the Roman Catholic Church and priest's house, respectively. The mound referred to as Feature 3 did not appear on Cameron's map; a three square metre test excavation indicated that this feature contained structural remains. A considerable number of pot holes exist north of Feature 3, and there is some indication that pot hunting has occurred in the bottom of Features 1 and 2. The dimensions of these three features range from 4.3 to 5.63 m long, 5.4 to 5.51 m wide and 0.3 to 1.63 m deep. Datums were driven into the ground on the south side of Feature 1 and on the northeast side of Feature 2.

During the site survey, permission was gained from Mr. Elmer Bristow to enter the cultivated field south of the designated land. Mr. Bristow remembered a circular depression when the field was cleared for cultivation some 10 years ago. He accompanied us to the general area and a slight depression, Feature 4 (approximately 2.5 m in diameter and 15 cm deep), was still visible on top of a knoll. Mr. Bristow also remembered a smaller depression which was no longer visible, some 10 m northwest of Feature 4. Surface inspection was limited since the field was in crop, but one earthenware fragment was collected from Feature 4. No other cultural remains were visible at either area identified by Mr. Bristow.

Feature 5 consisted of a surficially apparent historic artifact cluster originally located by Forsman in 1982 (Forsman personal communication 1985). The artifacts were located on the surface of a knoll and were spread over an area some six metres in diameter. Again, surface inspection was limited, but the visible artifacts were collected and consisted of three glass container fragments, one glass fragment distorted by heat and three unidentifiable metal fragments. No other remains were apparent at this location.

Hudson's Bay Company Complex

There are seven features associated with this complex (Figure 8, Features 6-12). All features consist of overgrown, generally circular depressions located on provincially designated land, north of and generally overlooking the road. While all are overgrown, erosion within and between Features 7 and 8 has exposed fragments of chinking. These fragments have been subjected to heat and have become brick-like in colour and consistency. A considerable number of small holes occur within this complex which have probably resulted from pot hunting. There was also an area of raised ground which may be associated with a feature in the area between Features 6 and 12.

This area of remains matches Cameron's map favourably, and Features 6, 7 and 8 would appear to correspond with the Hudson's Bay Company store and trader's house. None of the other features were indicated on Cameron's map. A three square metre test excavation of Feature 12 yielded no artifacts or structural remains.

The dimensions of these features range from 1.2 to 3.5 m long, 1.41 to 2.58 m wide, and 0.5 to 1.37 m deep. One datum was driven into the ground between Features 7 and 8.

Government Complex

There are 14 features associated with this complex (Figure 8, Features 13-26). The features consist of a variety of circular, linear and rectangular depressions located on land belonging to the Indian Reserve north of the road which bisects the site. Most are located on higher, level ground, although Features 14, 15, 22 and 23 are located on the slopes of knolls, and Features 13 and 24 are located on low land below the knolls. All features are overgrown and there was no indication of pot holes throughout this complex. A metal cross, some 2 m high, is located on the slope of a knoll approximately 15 m south of Feature 19.

Several of the features in this complex compare favourably with locations outlined on Cameron's map. Features 18, 20 and 21 appear to correspond to the interpreter's house, the N.W.M.P. barracks and the farm instructor's house, respectively. Features 22 and 23 correspond to the stables, and Features 25 and 26 may be associated with the Indian agent's house. Functions and identities of the remaining features in this complex are not apparent from the survey or the map.

The dimensions of the features (with the exception of Features 16 and 17) in this complex range from 1.8 m to 5.0 m long, 1.5 m to 7.2 m wide, and 0.15 to 2.3 m deep. Feature 16 is an irregularly shaped depression which is approximately 4.8 m long x 1.2 m to 2.0 m wide x 0.18 m to 0.35 deep. There is a linear depression leading north from the feature which is 23.8 m x 0.8 m x 0.45 deep. Feature 17 is also irregular in shape. The main oval portion is 4.5 m x 2.8 m x 1.48 m deep. There is a linear depression leading from the east edge of the oval which is 6.6 m long, from 0.98 m to 1.61 m wide and from 0.61 m to 0.17 m deep. Datums were driven into the ground between Features 18 and 20, between Features 22 and 23, and on the south side of Feature 26.

Trail to Indian Camp

This feature consists of remnants of a wagon trail which is located on Indian Reserve land in the area between the Hudson's Bay Company and the Government complexes (Figure 8, Feature 27). The trail is generally overgrown but runs in a general NE-SW direction through the gully between the two complexes.

The trail remnants compare favourably with the "road" noted on Cameron's map which connected the settlement to the Indian camp. The trail, where visible, was approximately 2.5 m wide and the ruts were up to 0.4 m deep.

It is likely that the gravel road which bisects the main settlement area (referred to as Massacre Street on the old survey plans) is close in alignment to the wagon road which once connected Frog Lake and Fort Pitt.

Independent Trader Complex

The last feature to be associated with the main settlement area was located on Indian Reserve land south of the road which bisects the site (Figure 8, Feature 28). This circular depression was located in a clearing, and corresponds favourably with the location of the store belonging to the independent trader. The feature measures 3.71 m x 4.64 m x 0.74 m deep. No other features were located during a foot survey of this area. A well used trail from the gravel road passes close by this feature.

Mill Complex

There are four features associated with this complex (Figure 8, Features 29-32). The features consist of two circular depressions, one large rectangular depression and the remnants of a wagon trail. All are on privately owned land in a cleared area bordering Frog Creek.

Feature 29 consists of a rectangular depression located at the creek edge. It was cut into the side of a knoll and contains groups of large stones in the bottom and along the edges of the depression. The remnants of a wagon trail, Feature 30, are located to the east of this depression; it leads south and east to the current road system. Feature 31 is a circular depression located southwest of Feature 29. Feature 32 is a smaller, less visible depression situated between two large rocks.

This complex of features generally corresponds with the lumber mill and incomplete grist mill shown on Cameron's map. Local informants indicated that the mill wheel was removed from this area in 1954. Additional features were not located, and there was no evidence for the dam across Frog Creek.

The dimensions of these features range from 1.6 to 15.9 m long, 0.67 to 22.51 m wide and 0.25 to 2.1 m deep. One datum was driven into the ground between Features 29 and 31.

TEST EXCAVATIONS

Only a brief description of the test excavation results is included in this preliminary report. Complete details of the structural and artifactual remains recovered during the excavation are contained in the final report which is on file at the Archaeological Survey of Alberta.

Test excavations were conducted at features associated with the Roman Catholic Mission complex and the Hudson's Bay Company complex. A total of 12 1x1 m squares were excavated to provide information on the nature, extent and research or interpretive potential of the features at FkOo-10. The structural remains uncovered are discussed where relevant in the interpretations section, to follow.

The cultural materials recovered from these units were dominated by chinking remains which had become brick-like in consistency as a result of burning. A total of 440 artifacts were recovered from the excavations. These consisted of 338 (76.8%) square machine cut nails, 43 (9.8%) glass fragments, 26 (5.9%) metal fragments, 12 (2.7%) ceramic fragments, 10 (2.3%) cast iron stove fragments, 6 (1.3%) screw/hardware fragments and 5 (1.2%) metal container fragments. All chinking fragments 2 cm or larger in diameter were collected during the excavation. Of the 2,404 pieces collected, 116 were catalogued as part of the artifact assemblage. These pieces were considered to be valuable in terms of structural and interpretive information because of the data they provided on log sizes, whitewash, fabric impressions, etc.

SITE INTERPRETATIONS

The 1985 survey and excavation programme has provided a greater awareness and understanding of the historical resources of the Frog Lake settlement. Survey results indicate that, by the time of its destruction in 1885, the settlement covered a large area within and bordering the Unipouheos Indian Reserve 121. The main site area of FkOo-10 is approximately 600 m east-west by 350 m north-south and is oriented along both sides of the gravel road which bisects the site. This road is probably closely aligned with the original trail to Fort Pitt and is referred to as "Massacre Street" on the early survey plans. The settlement remains at Frog Lake also include the location of the lumber mill on Frog Creek approximately 4 km west of the main settlement, also adjacent to the Indian Reserve. The settlement had a very short lifespan; the first buildings were built after 1879 and everything was destroyed and abandoned in 1885. The existence of large numbers of square machine cut nails at the site is dateable to this time period.

The site area of FkOo-10, including the main settlement and the mill, contains a total of 32 archaeological features. The majority of these features are considered to represent cellar depressions marking the locations of buildings at the site. These features and their general configurations correspond well with the sketch of the settlement prepared with the assistance of Cameron in 1947 (Figure 7). Given the present knowledge about the site, the author assumes that this map provides a valid background for the identification of many of the features at FkOo-10. Of course, it is quite possible that further investigations of the features by excavation or historical research could change the identities and functions of any of these features.

Within the Roman Catholic Mission complex, Features 1 and 2 are considered to represent cellar depressions of the Roman Catholic Church and Father Fafard's house, respectively (Figure 8). The three square metre excavation beside Feature 2 indicated that the depression was associated with a building. The excavation results revealed that the building had been constructed of logs and had been destroyed by fire. Construction utilized square machine cut nails, pane glass for at least one window, and mud/clay chinking for the cracks between the logs. Although it was not clear whether the excavation unit was within or beyond structural limits, there appeared to be building site preparation in the form of loose sand, gravel or clumps of clay. These lenses may also have been associated with flooring. The recovery of a few ceramic fragments also suggests a residential function for the building. A cast iron stove, identified by a handle for a stove top lid, was also part of the structure.

The next feature in the Roman Catholic complex is the mound referred to as Feature 3. This mound does not appear on Cameron's map and, although there are historical references concerning the existence of a school in this general area, there is no evidence to identify this feature. The three square metre excavation through part of the feature indicated that the mound consisted largely of structural remains. There was, however, no in situ evidence to correlate the exact location of a structure with the mound. The excavation indicated that the structure had no cellar and had utilized chinking, square machine cut nails, and pane glass for at least one window. The artifacts do not suggest a function for the structure, although a cast iron stove was apparently used.

The final two features included in this complex may not actually be part of the Roman Catholic Mission. Feature 4 is the remains of a depression remembered by a local resident and Feature 5 is a historic artifact scatter. The identities and functions of these features are unknown, although it is quite possible that Feature 4 may have been a cellar depression associated with a structure. The proximity of these features to the other site remains and the recovery of a piece of heat distorted glass from the artifact cluster, suggest that Features 4 and 5 were part of the Frog Lake settlement area.

The next group of seven features are associated with the Hudson's Bay Company complex. Feature 6 is considered to represent the cellar depression of the H.B.Co. store, and Features 7 and 8 are thought to represent cellar depressions below the house and attached shed occupied by Simpson, the H.B.Co. trader.

The three square metre excavation between Features 7 and 8 exposed in situ structural remains associated with a building destroyed by fire. The excavation results indicated that the building was constructed of logs and rough hewn planks. Construction appeared to have begun with the excavation and levelling of the building site. An 18 cm diameter sill log was used, and 2 cm thick planking was nailed to the log by 8.4 cm long nails. The planking appears to have been flooring within the structure. Structural edges or internal room limits were not evident from the small area excavated. Construction also utilized square machine cut nails, a hinge, pane glass for at least one window, and mud/clay chinking for the cracks between the logs. Some of the chinking from these units evidenced remnants of whitewash and impressions from a burlap type of fabric. The ceramic and glass artifacts were too distorted by heat to provide functional information. One fragment of cast iron suggested that a metal stove was also part of the structure.

Features 9, 10, and 11 were all small in size. Given the locations of these features relative to the orientation of the larger cellar depressions to the road, these small features may have been outhouse locations at the rear of the H.B.Co. store and house.

Feature 12 was large depression which prior to test excavation was thought to have been cellar remains associated with a structure. Three square metres of excavation, however, provided no information on the function, nature or age of this feature. It is possible that the depression was only excavated and then the settlement was destroyed before construction could continue. Although there was no evidence that this feature was part of FkOo-10, its proximity to the site suggests that it was associated with the Frog Lake settlement.

The next 14 features are associated with the Government complex. Features 13, 14 and 15 are all fairly large, circular depressions which were not shown on Cameron's map. The functions of these features are unknown, although the individual configurations are suggestive of cellar depressions. They are considered to be part of the Frog Lake settlement.

Features 16, 17, 18, 20 and 21 are considered to be cellar depressions of structures described by Cameron. Feature 18 represents the location of Interpreter Pritchard's house, Feature 20 is associated with the location of the North West Mounted Police barracks, and Feature 21 represents the location of Farming Instructor Delaney's house. Feature 16, with its irregular shape and long ditch-like depression leading from the feature to the edge of a downhill slope, may be the site of Delaney's milk house. Feature 17, including a possible excavated entryway on one side of the depression, may be the site of the potato and vegetable cellar.

Feature 19 has no known function or identity. Given the orientation of the houses and barracks to the road, it is unlikely that this feature represents the location of an outhouse. It is possible that the feature marks the site of a well. The history of the metal cross located south of Feature 19 is not known.

Features 22 and 23 are large dugouts excavated into a hillside slope. These depressions represent the locations of the stables associated with the Government complex. As in a typical dugout, the entryway to each stable was from the lower side of the slope. Feature 24 was considered to be a cellar depression, although there was no evidence to identify its function or affiliation. However, because of its position within the settlement, it is considered to be part of the Government complex.

The final two features in this complex are associated with the residence of Quinn, the Indian agent. Feature 26 is considered to be the cellar depression of the house, while Feature 25 is thought to be an outhouse location. Cameron's map indicated that the Indian Agency warehouse was located north of the house. Evidence for this structure was not surficially apparent.

Feature 27 consists of the remnants of an overgrown wagon trail which runs from the current gravel road through a gully between the Government and H.B.Co. complexes. This feature is considered to be associated with the settlement and, at one time, led to one of the Indian camps on the reserve.

Feature 28 is the final depression associated with the main settlement area. This cellar depression is considered to be the remains of the store operated by Dill, an independent trader. It is possible that the well used track which leads close to this feature may be part of a historical trail system through the settlement area.

The final four features associated with FkOo-10 are part of the Mill complex west of the main settlement area. Feature 29 is a large, deep, rectangular depression cut into a slope at the edge of Frog Creek. This feature represents the site of the lumber mill built by Gowanlock. A wagon trail, Feature 30, is located at the east edge of the mill depression. Feature 31 is considered to represent the cellar depression of the house, and Feature 32 may be associated with the location of an outhouse.

CONCLUSIONS

The 1985 archaeology programme at FkOo-10 has defined and clarified the extent of the historical resources at the historic settlement of Frog Lake. The site resources are extensive and, aside from cultivation and pot hunting in the Roman Catholic complex and pot hunting and erosion in the Hudson's Bay Company complex, the archaeological remains are in excellent condition.

While a considerable number of features and remains were identified at the site of the settlement, further archaeological survey would be of value. A survey would add features such as outhouses and possibly garbage middens to the existing inventory of settlement features. It is likely that features missed because of dense vegetation would be located if a survey was conducted during the spring or fall seasons. It would also be useful to expand the limits of the survey to include areas on and around the Indian Reserve which were part of the chain of events at Frog Lake. The site of FkOo-10 represents predominantly white settlement activity at the time of the massacre. Equally important are the camp of Big Bear's Plains Cree who were temporarily settled on the reserve in 1884, and the camps or cabins of the Wood Cree who were permanently settled on the reserve. In addition to these, were the camps or cabins of an unknown number of Metis who also lived in the Frog Lake area. The location and identification of all of these historical resources is a necessary part of the development of a well rounded research programme at Frog Lake.

Test excavations of selected archaeological features in the main settlement area provided information on the nature, extent and potential of the remains at FkOo-10. Further excavation in or around the known features would provide a wealth of information on the structural identification of each building. The complete excavation of each cellar depression would likely result in data on building size, method of construction, internal building divisions, types of flooring, window locations and the types and sizes of building hardware utilized. External features such as decorative gardens, walkways, hitching rails, etc. would also be apparent through extensive excavation. Although not clearly apparent in the 1985 testing programme, it is assumed that complete excavation of the structural remains would yield enough artifacts to provide a functional identification as well as cultural affiliation of each feature. Further excavation of these site remains would also be of value in the development and testing of hypotheses on historic settlement in general. Several of the feature locations have been tentatively identified as to function. Further research could verify these assumptions with the development of a suitable research design.

The historical resources of the Frog Lake area also have considerable potential for research into the ethnic and cultural diversity of the time period. The events of the massacre were a reflection of the structure and process of human society in the Frog Lake area in 1885. The society was comprised of white, Wood Cree Indian, Plains Cree Indian and Metis peoples. In addition to the factionalism which certainly existed between the groups, there were also divisions within the groups. For example, the white population was divided between traders, missionaries and government representatives, all of whom viewed the Frog Lake area and their involvement with it in different ways.

The historical resources of the Frog Lake area are an important part of our understanding of the conflicts and transitions that occurred during the settlement of western Canada. The site of the massacre, FkOo-10, and additional remains in the general area related to the events of 1885 are a largely undisturbed resource which should be fully protected for future research, interpretation and development.

ACKNOWLEDGEMENTS

The author wishes to thank the Alberta Historical Resources Foundation for providing all of the funding required to conduct this project, and Mr. Elmer Bristow, private land owner, for allowing the survey crew to enter his fields before the crop was harvested.

THE ARCHAEOLOGICAL INVESTIGATION OF A HUDSON'S BAY COMPANY POWDER MAGAZINE (IeOs-4) AT FORT CHIPEWYAN

By
Michael Forsman
Archaeological Survey of Alberta

INTRODUCTION

In July, 1985, mitigative excavations were carried out on a powder magazine located in the community of Fort Chipewyan. This action was carried out in response to community initiative in developing a tourist lodge proposal which threatened direct physical impact to this known historical resource. Given the distance of the site from the main Hudson's Bay fort complex, and their separation by a small bay, this powder magazine was assigned a new Borden designation, IeOs-4 (Figure 9).

HISTORICAL BACKGROUND

Two powder magazines had previously been recorded at Fort Chipewyan. Both had presumably been erected as a result of Roderick McFarlane's rebuilding of the site, ca. 1873. In 1889, Richard Hardisty, as Inspecting Officer, noted the existence of two powder magazines of size 8 x 8 feet (2.44 x 2.44 m). A sketch of the fort apparently drawn by Hardisty, illustrated the two powder magazines as being somewhat larger. The dimensions recorded on the sketch plan were 8-1/2 x 8-1/2 feet (2.59 x 2.59 m) and 10 x 14 feet (3.05 x 4.27 m). The latter structure was portrayed in approximately the same location as IeOs-4 (HBCA B.39/e/16). A slightly later inspection report, by J. McDougall in 1892, recorded the two powder magazines as "8 foot square" (2.44 x 2.44 m). One of these, corresponding to the IeOs-4 site location, was further reported as "mud and log with tin roof" (HBCA B.39/e/22). In 1898, George Bayne, Dominion Land Surveyor, surveyed the fort complex and identified structures, including the powder magazines, on a scaled map (Figure 10).

In 1978, Roderick Heitzmann relocated the site. He reported the surface characteristics as consisting of "a small rectangular outline

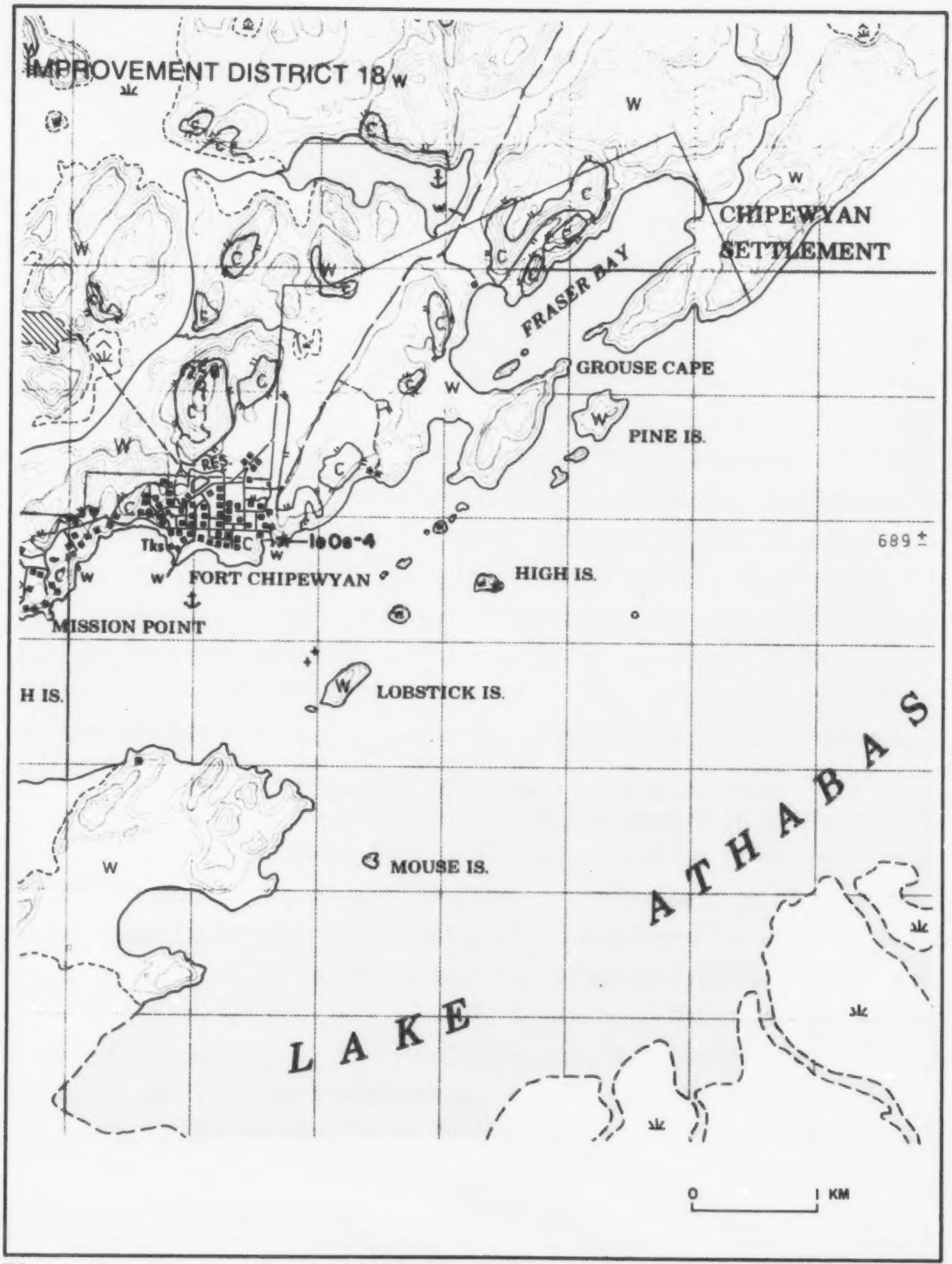
IMPROVEMENT DISTRICT 18
CHIPEWYAN SETTLEMENT
FRASER BAY
GROUSE CAPE
PINE IS.
RES.
IeOs-4
689 ±
HIGH IS.
FORT CHIPEWYAN
MISSION POINT
H IS.
LOBSTICK IS.
MOUSE IS.
LAKE ATHABASCA
0
1 KM

Figure 9. Map showing location of powder magazine site (IeOs-4) in relation to the modern community of Fort Chipewyan on Lake Athabasca.

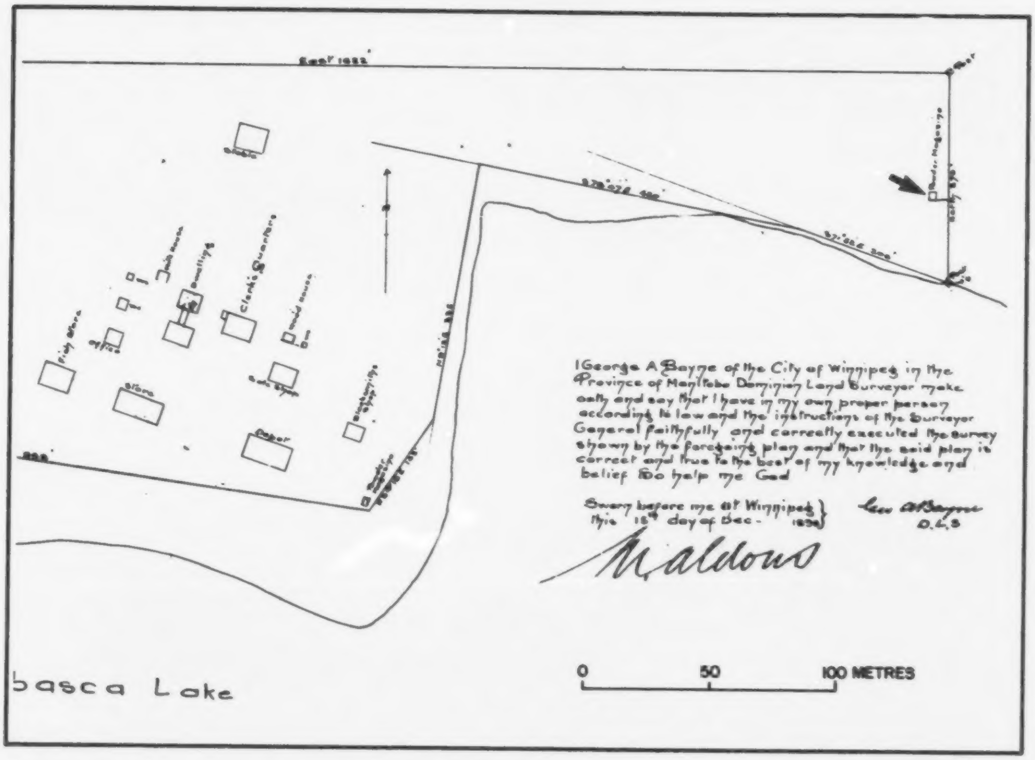
Stable
Dwellings
Clerk's Quarters
Fish Store
Office
Store
Depot
I George A Bayne of the City of Winnipeg in the
Province of Manitoba Dominion Land Surveyor make
oath and say that I have in my own proper person
according to law and the instructions of the Surveyor
General faithfully and correctly executed the survey
shown by the foregoing plan and that the said plan is
correct and true to the best of my knowledge and
belief So help me God
Sworn before me at Winnipeg
this 15th day of Dec -
Geo A Bayne
D.L.S
M. Aldous
0
50
100 METRES
basca Lake

Figure 10. Part of George Bayne's 1898 map of Hudson's Bay Company structures at Fort Chipewyan. The excavated structure is the easternmost powder magazine, marked by an arrow in the upper right corner of figure.

3.3 m x 3.8 m composed of silt, rock and wood on a bare rock ridge" (1979:53). An informant interview prior to excavation recorded that the powder magazine had been built in traditional post-on-sill style, that the door was situated on the west side and that there were no windows (Isadore Deranger personal communication 1985).

The powder magazine at IeOs-4 has not been observed in any historic photographic views. Analysis of a 1950 aerial photograph revealed that the powder magazine was still standing, but in close proximity to two other structures. Further informant interview indicated that one was a cabin, and the other a shed, and both were privately owned (Isadore Deranger, Lawrence Yanik personal communication 1985). Both reportedly dated to the early and mid-20th century.

METHODOLOGY

Prior to visiting the site, the background information was reviewed in conjunction with the probable effects of construction impact to formulate an archaeological approach to site mitigation. Archaeological expectations were identified for architectural remains, and for material culture remains. It was anticipated that the structure would be of relatively small size, about 2.4 m square, and would have been built directly on the natural bedrock. If a level surface was not available, conveniently sized stones or wood blocks would have been used as shims to level the structure; such a technique is known to have been used at other Hudson's Bay Company sites of this time period. In the event that site razing did not include lower wooden structural elements, then the foundation would be found to consist of squared timbers, lapped at the corner joints, and mortised for upright corner posts. Continuing in this vein, it was further supposed that some evidence for flooring might be present, such as floor boards, flooring nails, and floor joists. Fasteners would be predominantly cut nails, related mainly to floor, roof and door construction, since the wall system did not require such items. Some wire nails might be present, as used in maintenance or repair, because the structure stood into the twentieth century. It was doubted that many flat glass fragments, for windows, would be found. Mud or clay used for chinking, and whitewash, should be present and could form the major substance of the site matrix.

With regard to the material culture content of the site, it had been noted that the site was well removed from the main fort complex. Accordingly, the site would perhaps have been less frequently visited or used than structures in the main complex. Less activity could have resulted in fewer opportunities for objects to become a part of the archaeological record at the site. Furthermore, the specialized nature of the powder magazine would not lead to the same wide range of artifacts that would be found around the residential structure, for example. On the other hand, it was hoped that a fairly specialized material culture related to powder storage, and possibly to storage of fixed ammunition and other related goods, would be represented archaeologically. Accordingly, it was proposed that the material culture might be found to include barrel bands or hoops from the powder kegs, musket balls, bullets, shot, cartridges, cartridge shells, lead stock for casting bullets, gun flints, percussion caps, and possibly even gun parts.

A site survey was undertaken to relocate the powder magazine and to determine the relationship between the site, existing features and the proposed tourist lodge (Figures 11, 12). A grid of 1 m intervals was established to control the excavations. A transit was used to tie the grid into local landmarks, and to establish precise grid angles. Bearings on the Historic Sites and Monuments Board cairn at IeOs-3, the navigational light tower on High Island and the property pin at the south corner of Lot 20 Block 3 were taken from the datum, and the angles were recorded. The grid was oriented parallel to the apparent outline of the foundation and covering mound. Arbitrary elevations were recorded at the grid intersections, and a contoured site plan was produced (Figure 13).

Figure 11. Oblique aerial view of powder magazine (IeOs-4) site location, marked by arrow. View to northeast.

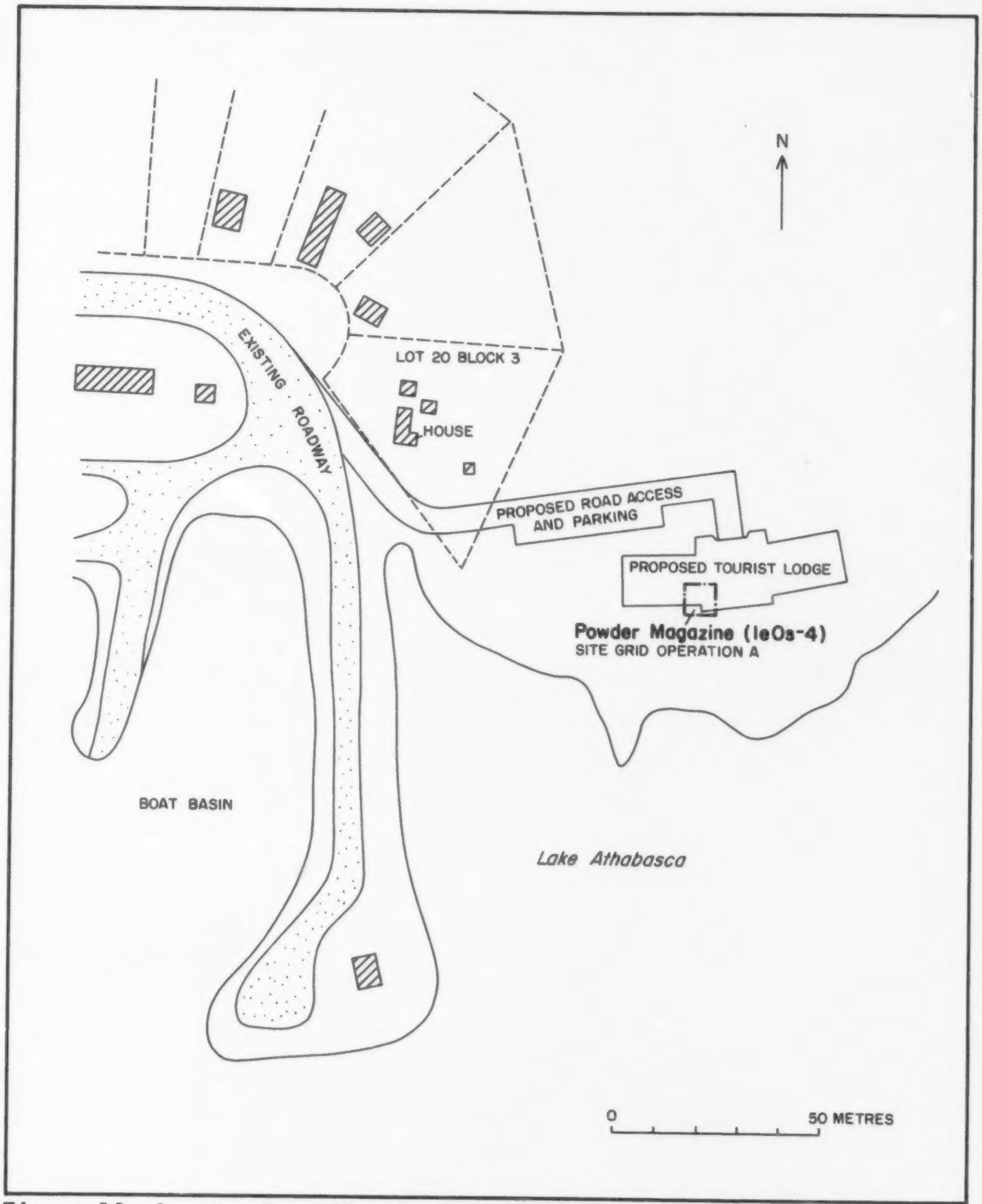
N
LOT 20 BLOCK 3
EXISTING ROADWAY
HOUSE
PROPOSED ROAD ACCESS AND PARKING
PROPOSED TOURIST LODGE
Powder Magazine (IeOs-4)
SITE GRID OPERATION A
BOAT BASIN
Lake Athabasca
0
50 METRES

Figure 12. Survey plan illustrating relationship between powder magazine IeOs-4, the proposed tourist lodge and existing nearly features.

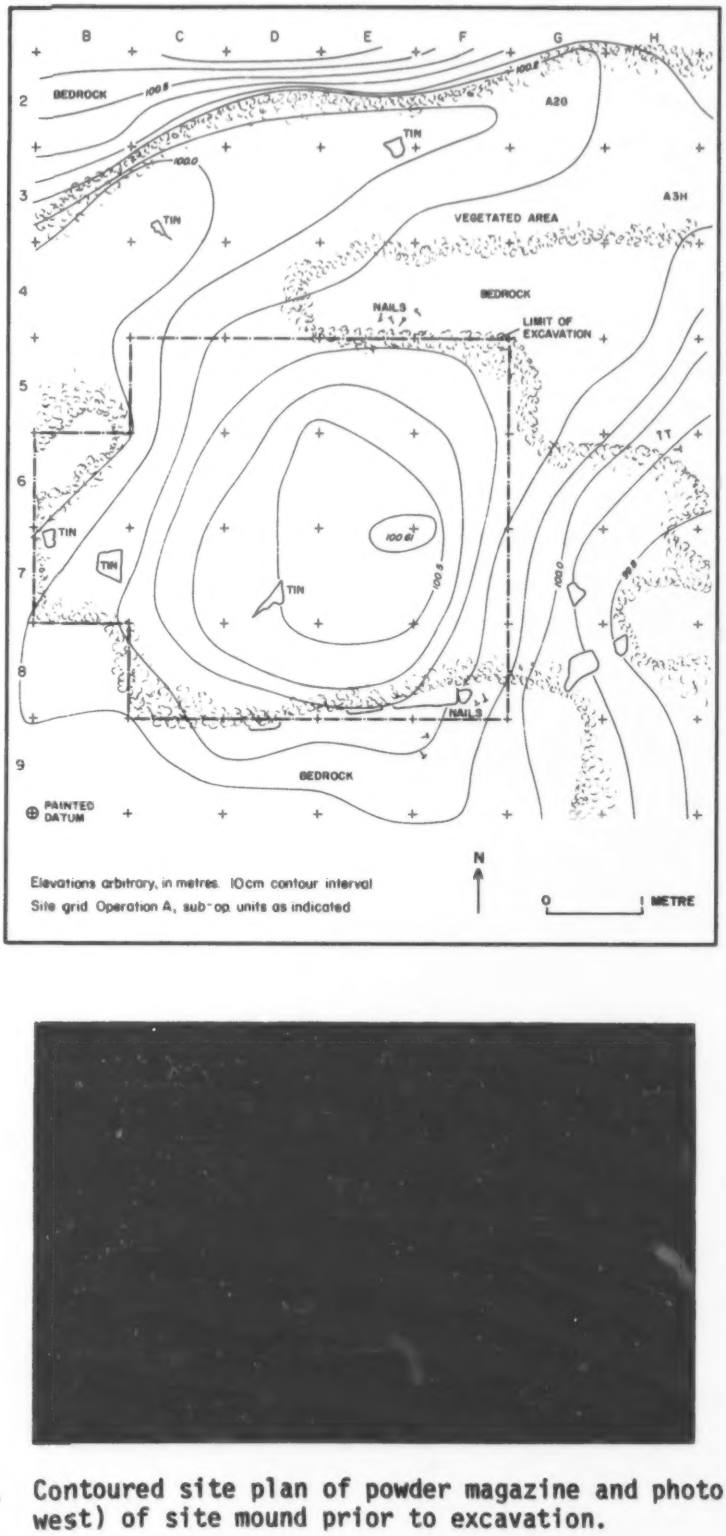
B
C
D
E
F
G
H
2
3
4
5
6
7
8
9
BEDROCK
100.5
100.0
A20
TIN
A3H
VEGETATED AREA
BEDROCK
NAILS
LIMIT OF EXCAVATION
TIN
TIN
TIN
100.61
100.5
TIN
100.0
99.9
TT
NAILS
BEDROCK
PAINTED DATUM
N
Elevations arbitrary, in metres. 10cm contour interval
Site grid Operation A, sub-op. units as indicated
0
1 METRE

Figure 13. Contoured site plan of powder magazine and photo view (to west) of site mound prior to excavation.

Due to the small size of the site, the whole excavation was under a single operation, designated "A". Each square metre of the grid was designated a sub-operation. For the purpose of identifying sub-operations, the grid pattern was numbered on the north-south axis, and lettered A to H on the east-west axis. Numbering and lettering began in the northwest corner of the grid. The datum, at the southwest corner, occurred on bedrock and was painted red with an X inside a circle.

The next strategy involved taking a surface collection. Since this site is in an exposed and well travelled area, no artifact found on the surface could be assumed to be in its original place. Nevertheless, provenience was maintained and all surface artifacts were catalogued according to grid square.

Excavation of the site was done with trowels and the matrix was screened through a hand screen with 6.5 mm mesh. Sections of the covering mound were excavated in turn so that profiles could be drawn at various locations across the powder magazine (Figures 14, 15). Topsoil was thin and poorly developed. Although grasses, small shrubs, wild flowers and mosses covered most of the surface, bare clay exposures were also visible. Removal of surface vegetation was easy since there was no major root development or penetration of roots into subsurface soils. Excavation was difficult due to past compaction and sun-baking of the clay deposit. The clay was solid and adhered strongly to buried wood remains. The wood remains were weak and disintegrating, and even meticulous attempts to expose the remains were usually futile.

RESULTS

The site was easily located through reference to past surveys. The site was characterized by a small mound covered with vegetation, on an exposed bedrock outcrop. The presence of several wrought and cut nails on the surface aided initial dating and identification of the site.

The powder magazine was completely excavated (Figure 16). The outline of the powder magazine was indicated by the rectangular arrangement of quarried stone rubble, resting directly on an open bedrock exposure. Stones were used all along the foundation, instead of just at

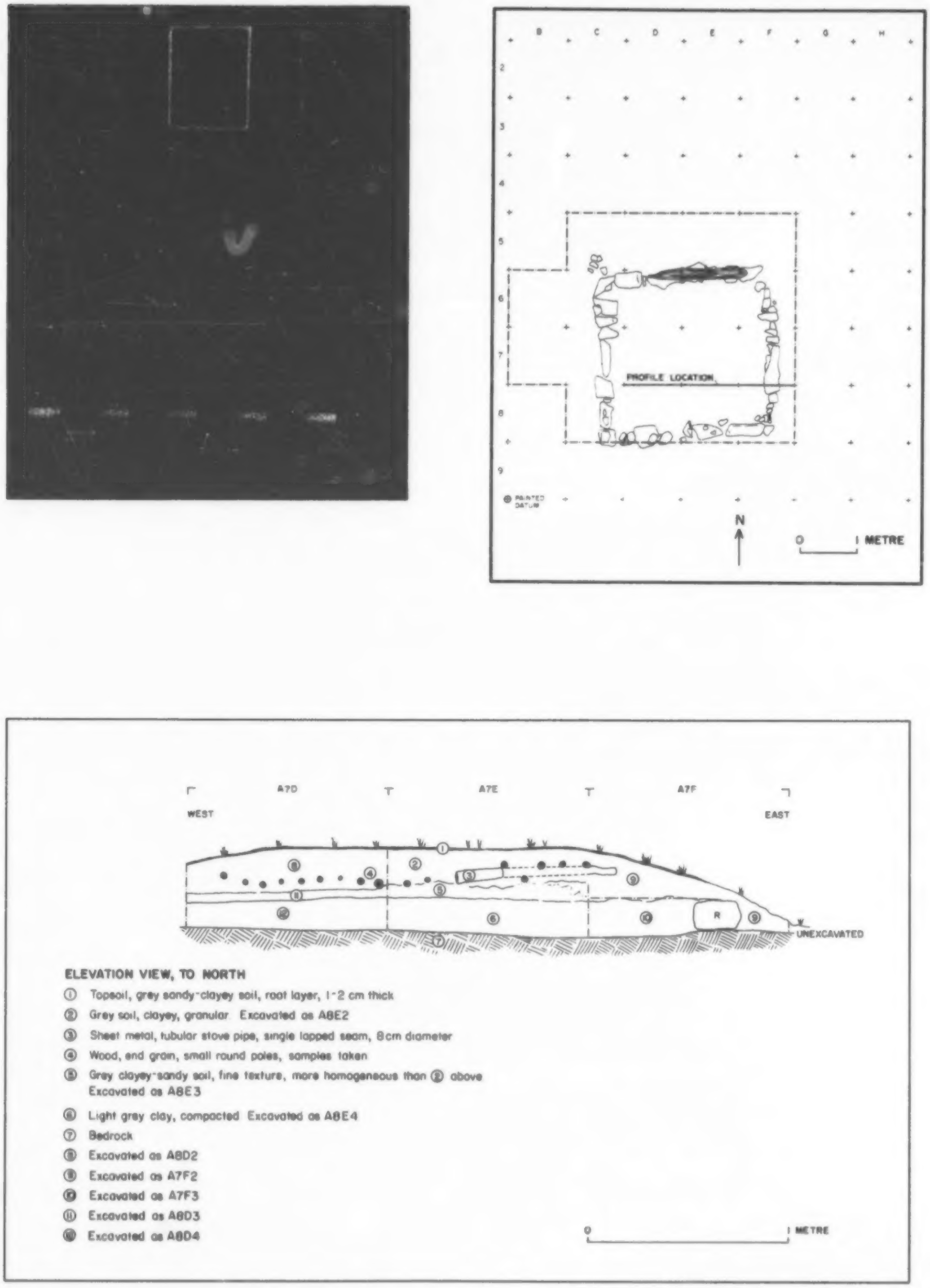
B
C
D
E
F
G
H
2
3
4
5
6
7
8
9
PROFILE LOCATION
PAINTED DATUM
N
0
1 METRE
A7D
A7E
A7F
WEST
EAST
UNEXCAVATED
R
ELEVATION VIEW, TO NORTH
① Topsoil, grey sandy-clayey soil, root layer, 1-2 cm thick
② Grey soil, clayey, granular Excavated as A8E2
③ Sheet metal, tubular stove pipe, single lapped seam, 8cm diameter
④ Wood, end grain, small round poles, samples taken
⑤ Grey clayey-sandy soil, fine texture, more homogeneous than ② above Excavated as A8E3
⑥ Light grey clay, compacted Excavated as A8E4
⑦ Bedrock
⑧ Excavated as A8D2
⑨ Excavated as A7F2
⑩ Excavated as A7F3
⑪ Excavated as A8D3
⑫ Excavated as A8D4
0
1 METRE

Figure 14. Photo view of wood pole construction and profile showing pole remains in relation to excavated soils and other features.

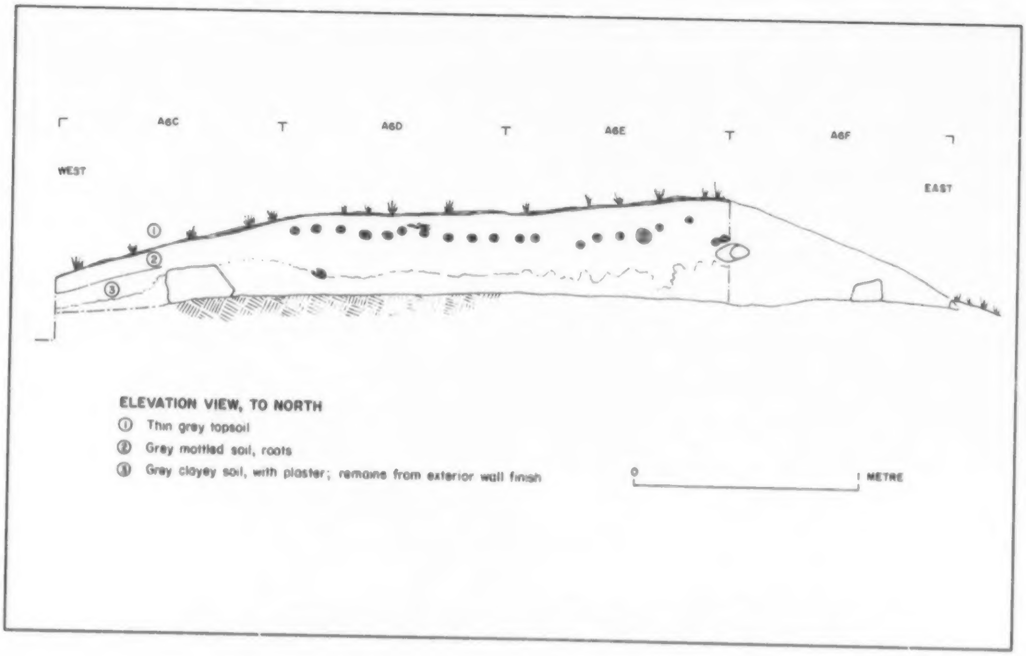
A6C
A6D
A6E
A6F
WEST
EAST
①
②
③
ELEVATION VIEW, TO NORTH
① Thin grey topsoil
② Grey mottled soil, roots
③ Gray clayey soil, with plaster; remains from exterior wall finish
0
1 METRE

Figure 15. Photo view (to northwest) of excavation in progress and profile of visible section.

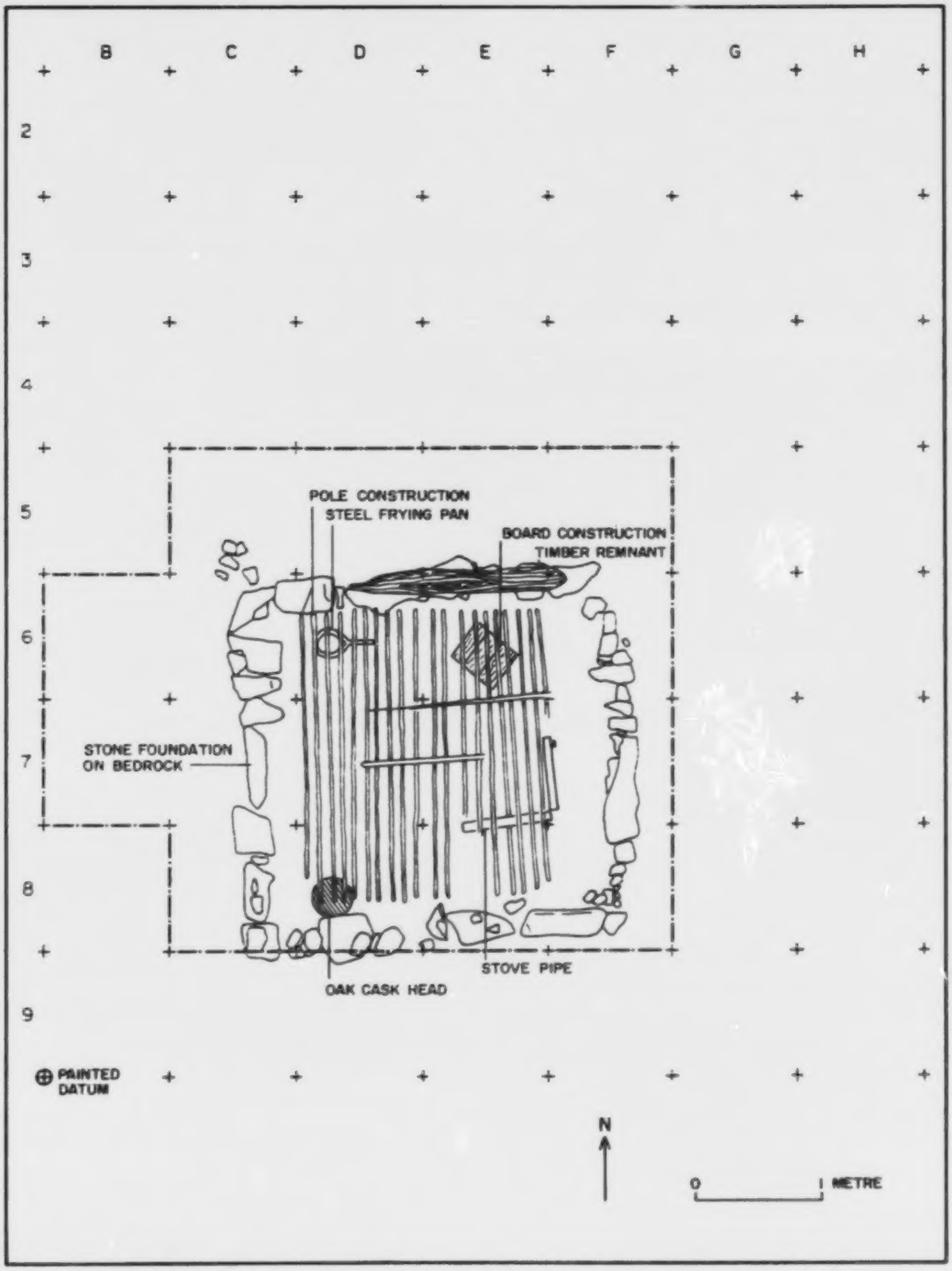
B
C
D
E
F
G
H
2
3
4
5
6
7
8
9
POLE CONSTRUCTION
STEEL FRYING PAN
BOARD CONSTRUCTION
TIMBER REMNANT
STONE FOUNDATION ON BEDROCK
STOVE PIPE
OAK CASK HEAD
PAINTED DATUM
N
0
1 METRE

Figure 16. Plan view of excavated remains at Fort Chipewyan powder magazine (IeOs-4).

the corners for levelling. The joints between the stones were unmortared and loose-fitting. The overall size of the foundation was 3 x 3 m.

The remains of one timber overlay several stones along the north wall. This timber was squared, a maximum of 20 cm wide, and was interpreted as the remains of a base log. Along the north face of the base log were the traces of vertical wood remains fastened at two locations. The fasteners used were wrought and cut nails, and were very corroded. The vertical wood remains may represent exterior wood sheathing or lathing.

Inside the foundation, a large assembly of wooden poles and timbers was found (Figures 14 to 16). The largest of the small poles was about 4 cm in diameter. The remains of two timbers were found overlying the smaller poles. The maximum recorded thickness of the better preserved timber was 8 cm. Its cross-sectional shape was irregular due to extensive deterioration. Wrought nails were found in situ, fastening the poles to the timbers. Six well preserved, complete nails had lengths of 58, 63, 64, 66, 68, and 74 mm. One nail was present in each pole, head down, pointed up. The pole and timber assembly was interpreted as an overhead, ceiling construction within the powder magazine. The use of wrought nails in its construction pointed to an early assembly, probably contemporary with building construction. The stratigraphic position of the pole structure, i.e., overlying more recent artifacts and materials (Figures 16, 17), probably resulted from site razing.

A total of 1,212 artifacts and faunal fragments were recovered from the site, excluding three plaster and eight wood samples. Twenty-four objects and fragments (1.98%) were obtained from the surface (Table 3); the remainder were recovered from an excavated context (Table 4).

None of the surface collected remains were considered diagnostic of site function, degree of use, or time period of use. Seventeen artifacts (70.83% of the surface assemblage) were nails and nail fragments. Most of these were cut nails, of which 9 were 40 mm long. Two of these specimens were present in holes along the edge of a sheet metal fragment, interpreted as roof covering.

The excavated collection was hardly more diagnostic, although numerically larger and more varied. Again, the most numerous artifacts were nails and nail fragments, numbering 847 (71.29% of the excavated

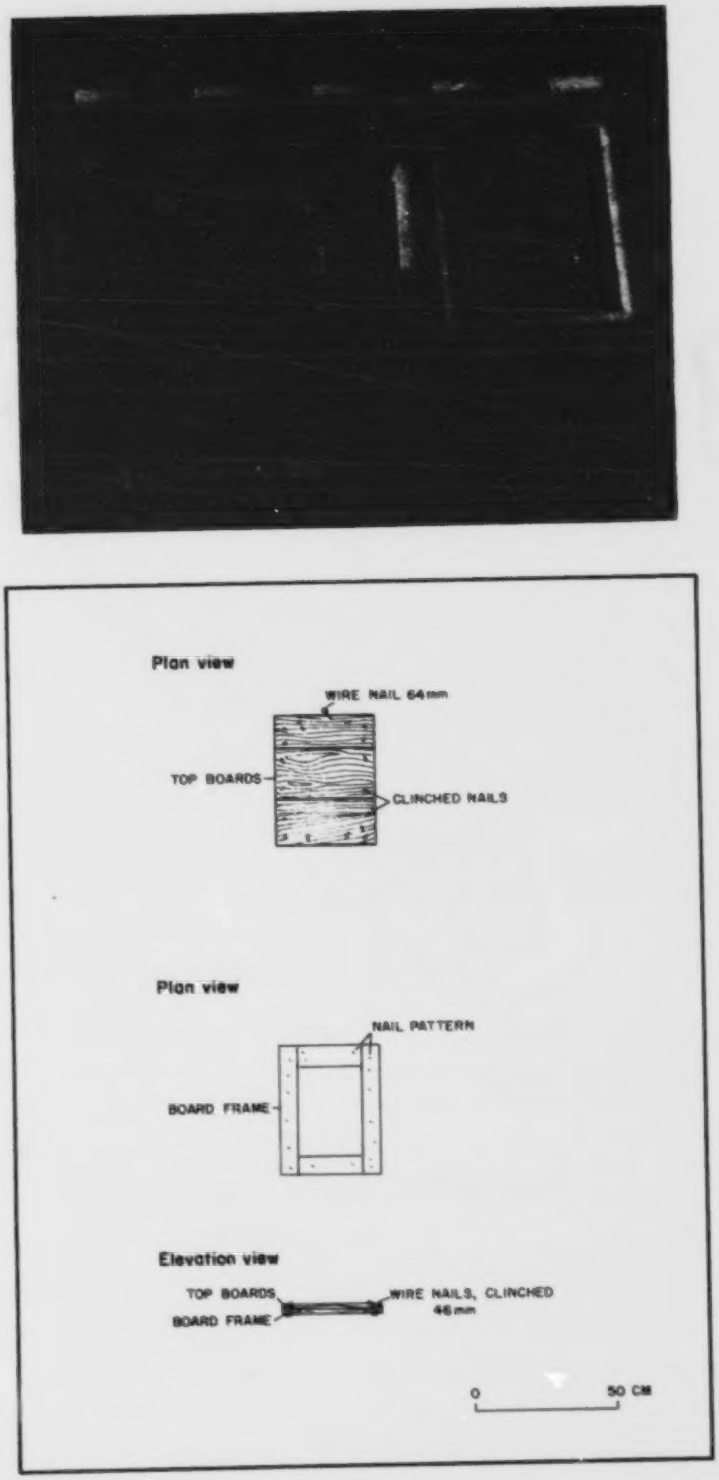
Plan view
WIRE NAIL 64mm
TOP BOARDS
CLINCHED NAILS
Plan view
NAIL PATTERN
BOARD FRAME
Elevation view
TOP BOARDS
WIRE NAILS, CLINCHED
46mm
BOARD FRAME
0
50 CM

Figure 17. Photo view and drawing details of board assembly found inside powder magazine.

Table 3. IeOs-4, surface collected remains.

Description	Number
Nails	
- wire, 80 mm	1
- cut	2
- cut, 40 mm	9
- cut fragments	2
- wrought fragments	3
	17
Sheet metal fragments, cut, with holes	3
Tin can lid	1
Rivet fragment	1
Cartilage fragments, unidentified	2
TOTAL	24

assemblage). It is interesting, if not significant, that the proportion of nails found on the surface is so similar to that excavated. Cut nails were the most frequent, followed by wrought nails, then wire nails. This ranking was the same for the surface collection.

Wrought nails ranged in size from 40 mm to 106 mm, with most of the nails (81, 80.2%) between 60 and 76 mm, inclusive. Cut nails ranged in size from 30 to 95 mm, but the large majority (385, 92.55%) were only 40 mm long. Several of these were found in holes along the edges of cut sheet metal, and sheet metal fragments considered to be roof covering. Wire nails ranged from 30 to 105 mm in size, with the shorter lengths of 30 to 45 mm slightly more numerous (33, 63.46%).

It could be inferred that wrought nails and cut nails were most probably associated with initial construction, ca. 1873, since some were found in situ with building remains, and wire nails are not known from dated contexts of such an age in Alberta (Figure 18, top). Several of the wrought nails were excavated in situ as fasteners for the wood pole construction. It is therefore suggested that many of the other wrought nails were similarly used as fasteners in the construction of the powder

Table 4. IeOs-4, excavated remains.

Description	Number
Nails	
- wire	52
- cut	416
- wrought	101
- fragments	278
	847
Copper sheeting nails	70
Rivet fragments	11
Screws	6
Sheet metal fragments, cut, with holes	40
Cask strap fragments, ferrous	35
Cask head fragments	4
Ceramic fragments	12
Glass fragments, curved	70
Flat glass fragments	25
Frying pan, sheet metal "spider"	1
Wire bail, for lard pail?	1
Buttons	5
Cloth, leather fragments	3
.12 gauge shotgun shell	2
.22 rimfire cartridge	1
.44 WCF cartridge casing	1
Misc. metal fragments	29
Spark plug	1
Trap fragments	2
Plaster fragments	(3)*
Wood fragments	(8)*
Bone fragments	22
TOTAL	1188 (1199)*

*not used in percentage calculation

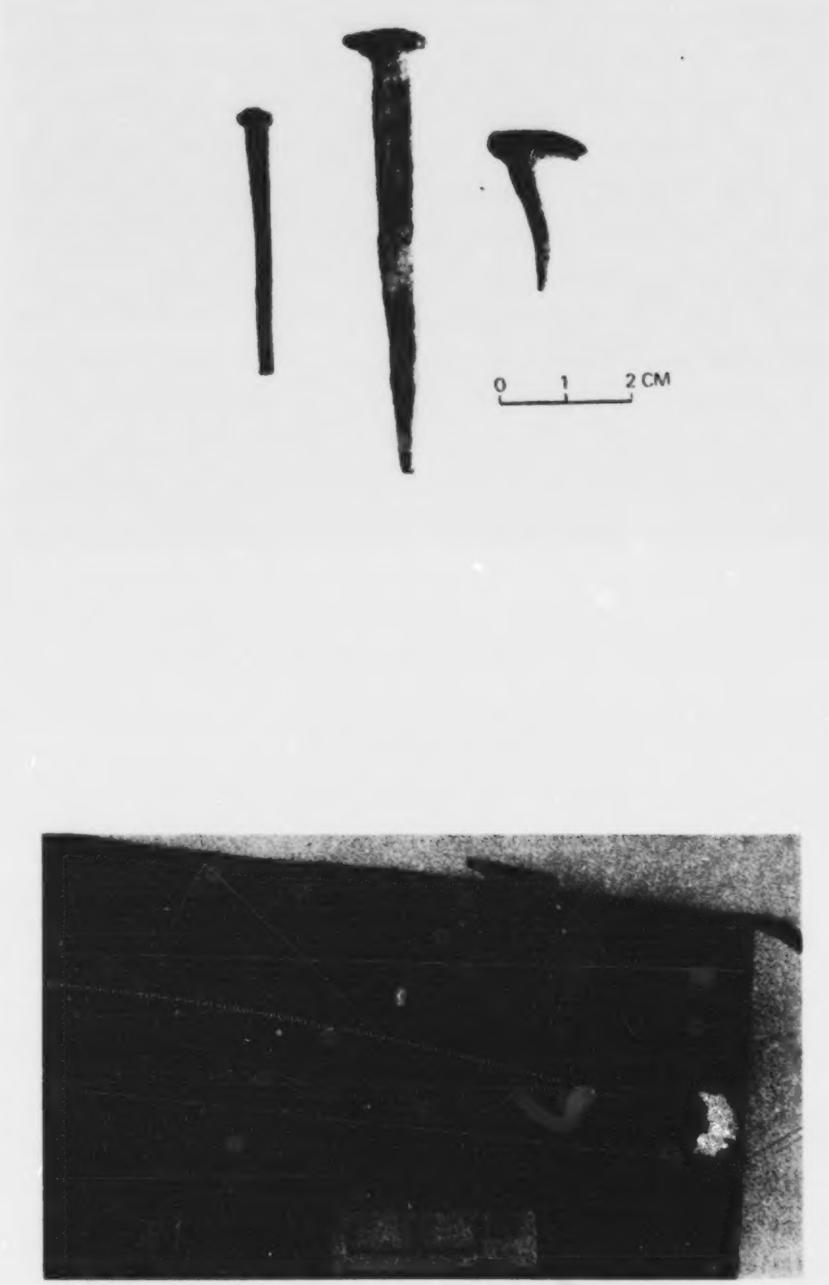

Figure 18. Nails from IeOs-4. Top: left - 40 mm cut nail associated with tin sheet roofing material; centre - hand wrought nail associated with wood pole assembly; right-hand wrought tack. Bottom - copper sheeting material with copper nail in situ.

magazine. The shorter wrought nails, of which few were found, may have been used in roofing construction.

Although cut nails occurred in a wide size range, they were few in number except for the 40 mm length. The size range which overlapped that for wrought nails may have been used as fasteners in similar structural contexts. The 40 mm cut nail, however, served a specialized function as a roof covering fastener. Because cut nails and wrought nails co-occur in similarly dated contexts and are associated with differing building materials of a common structure, it is interpreted that both were available at a single time period to serve specialized functions. The wire nails found at the site were interpreted as more probably associated with later maintenance or repair, and with fragmented objects of recent (late 1890s-20th century) construction.

Some copper sheeting nails were also recovered (Figure 18, bottom). Several nails were present in holes along the edges of rectangular pieces of copper sheeting. Often one of the edges had been bent 90^{0}. Similar artifacts are not known from other archaeological sites. In the absence of any information, it is conjectured that these copper nails and copper sheeting may be remnants from box construction related to the storage and handling of some explosive powder products.

One complete barrel or cask head, the fragments of another, and a threaded wooden stopper (Figure 19, top), all of oak, could have been from powder kegs. The shotgun shell casings and cartridge shells were not regarded as specifically indicative of the powder magazine function. The cask heads, a sheet metal frying pan and a board assembly underlay the pole/timber construction. The board assembly had been fastened with wire nails (Figure 17). It may have been part of a box construction or covering door to a powder magazine vent. A number of corroded sheet metal pipes, about 8 cm in diameter, were observed in confused relationship to the pole fragments. The sheet metal appeared under some poles and above others. The pipes may have been part of a vent system passing through the pole structure.

Many of the other artifacts found, i.e., ceramics, glass fragments, buttons (Figure 19, bottom), spark plug, trap fragments, and bone fragments, probably had less to do with the function of the powder magazine during its use by the Hudson's Bay Company than with its later

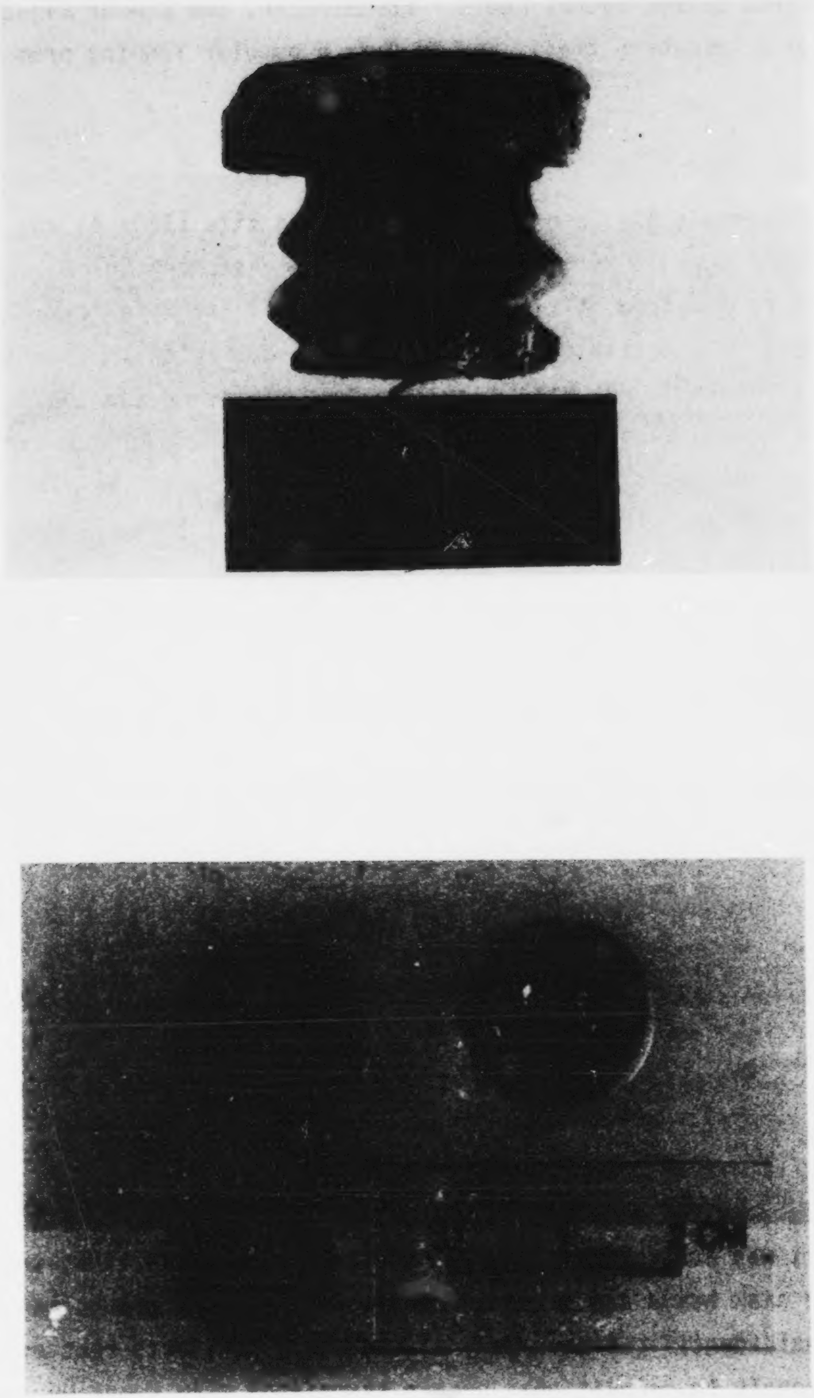

Figure 19. Wooden threaded stopper and buttons recovered from powder magazine (IeOs-4).

association to the nearby cabin. Furthermore, the powder magazine was close to a lakeshore trail, and is near a popular fishing promontory.

CONCLUSION

The Hudson's Bay Company powder magazine site (IeOs-4) was completely excavated (Figure 20), thereby mitigating any archaeological concerns over future development impact. Excavation of the site revealed a rectangular foundation of squared sill logs overlying loose stone rubble placed directly on the bedrock. The overall size of the foundation (3 x 3 m) did not compare well with Hardisty's and McDougall's recorded dimensions of the site. Certainly the site was square in plan. Only one dimension in any of the records (10 feet [3.05 m] on Hardisty's sketch plan) was the same, and that may have been simply coincidental. Although some wooden structural remains were preserved, it appeared significant that there was no clear evidence for flooring remains. Artifactual content was limited in variety and lacking in diagnostic qualities clearly associated with a powder magazine function. Archival documentation, supported by archaeological evidence, pointed to a construction date of ca. 1873.

Analysis of the nails recovered indicated that 40 mm long cut nails had been used predominantly for roof covering materials, especially for fastening metal sheeting, and that somewhat longer wrought nails occurred in other construction contexts. One of these was in the assembly of an interior pole structure, probably for ceiling construction. Wire nails, although present, were apparently brought to the site at a later date for maintenance and repair. Some of these were also associated with other objects such as the board assembly described. Most enigmatic of the artifacts were the pieces of copper sheeting and copper sheeting nails which, it was conjectured, might constitute a positive link, together with the cask heads and threaded wooden stoppers, to powder magazine functional identification. Many of the other artifacts recovered pointed more strongly to depositional events associated with subsequent site use.

The powder magazine, IeOs-4, offered good preservation of foundation and structural remains not impacted by site razing. The functional purpose of the site, and its relatively isolated location from the rest

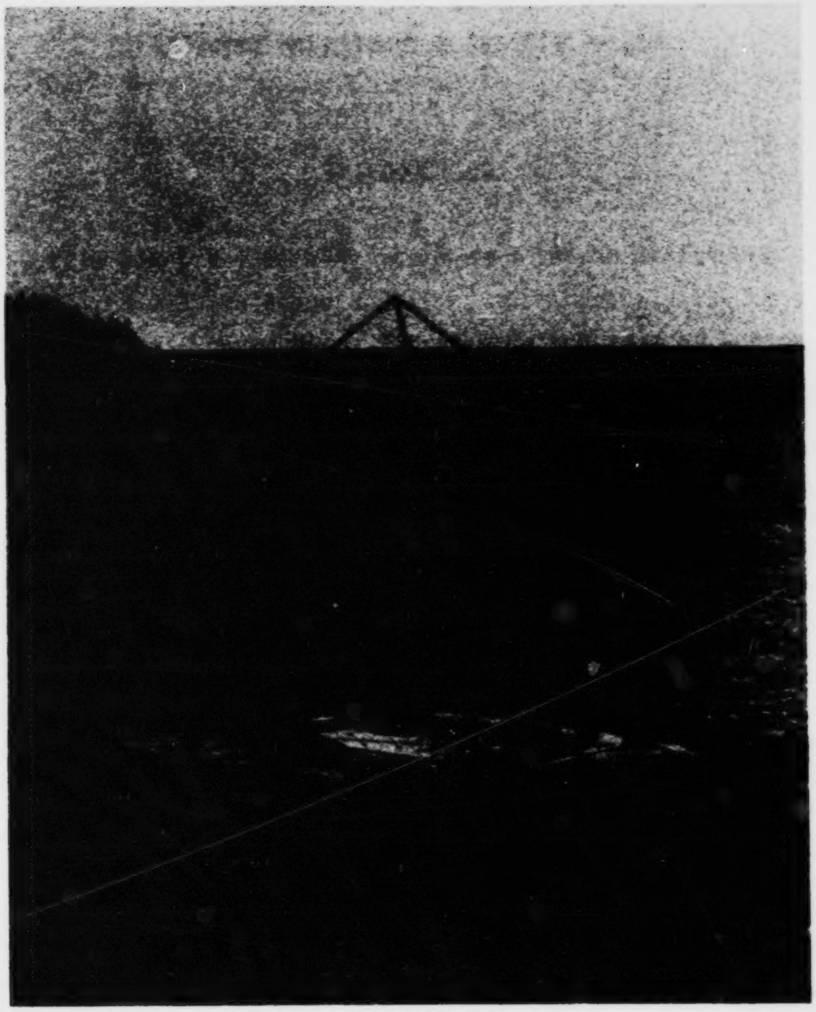

Figure 20. View showing excavated powder magazine foundation with superimposed structural outline. View to southeast.

of the fort complex, was not expected to be conducive to intensive or wide-ranging activities. The generally low frequency and narrow varietal range of artifacts supported this material culture proposition. On a final note, the excavation of this small site has further served to illustrate some of the values and limitations of both historical documentation and the archaeological record.

TWO LATE PREHISTORIC CERAMIC COMPONENTS AT THE LITTLE BOW SITE, EaPh-4

By
Gloria J. Fedirchuk
Fedirchuk McCullough & Associates Ltd.

INTRODUCTION

The Little Bow site, EaPh-4, is located in the undisturbed grasslands of the western Alberta Plains, approximately 130 km southeast of Calgary, Alberta (Figure 21). Situated on the edge of a high bluff on the left bank of a meander of the Little Bow River, the site overlooks the river valley as well as the lower plains to the south and east (Figure 22).

The Little Bow site was discovered during a historical resources impact assessment of the proposed County of Vulcan highway realignment of the Little Bow River crossing (Gryba 1984). To minimize impending impact to the site by highway construction, mitigative excavations were undertaken by Fedirchuk McCullough & Associates Ltd. and by the Archaeological Survey of Alberta in summer and fall of 1984 (Fedirchuk 1985). A total of 78 square metres were excavated.

Two apparent living floors occurred within the top 20 cm, one between 6 and 8 cm and another between 15 and 20 cm. The lack of distinct soil changes, the continuous vertical distribution of artifacts, and the discontinuous horizontal distribution of cultural materials obscured the boundary between these two living floors. Therefore, the living floors could not be identified continuously across the excavated portions of the site. In order to isolate activity areas which could be directly related to the living floors, the soil matrix from two arbitrary levels was removed by shovel shaving and troweling each one metre unit. Level 1 consisted of materials from 3 to 10 cm and Level 2 was from 10 to 20 cm. Component definition of the excavated materials was based on both

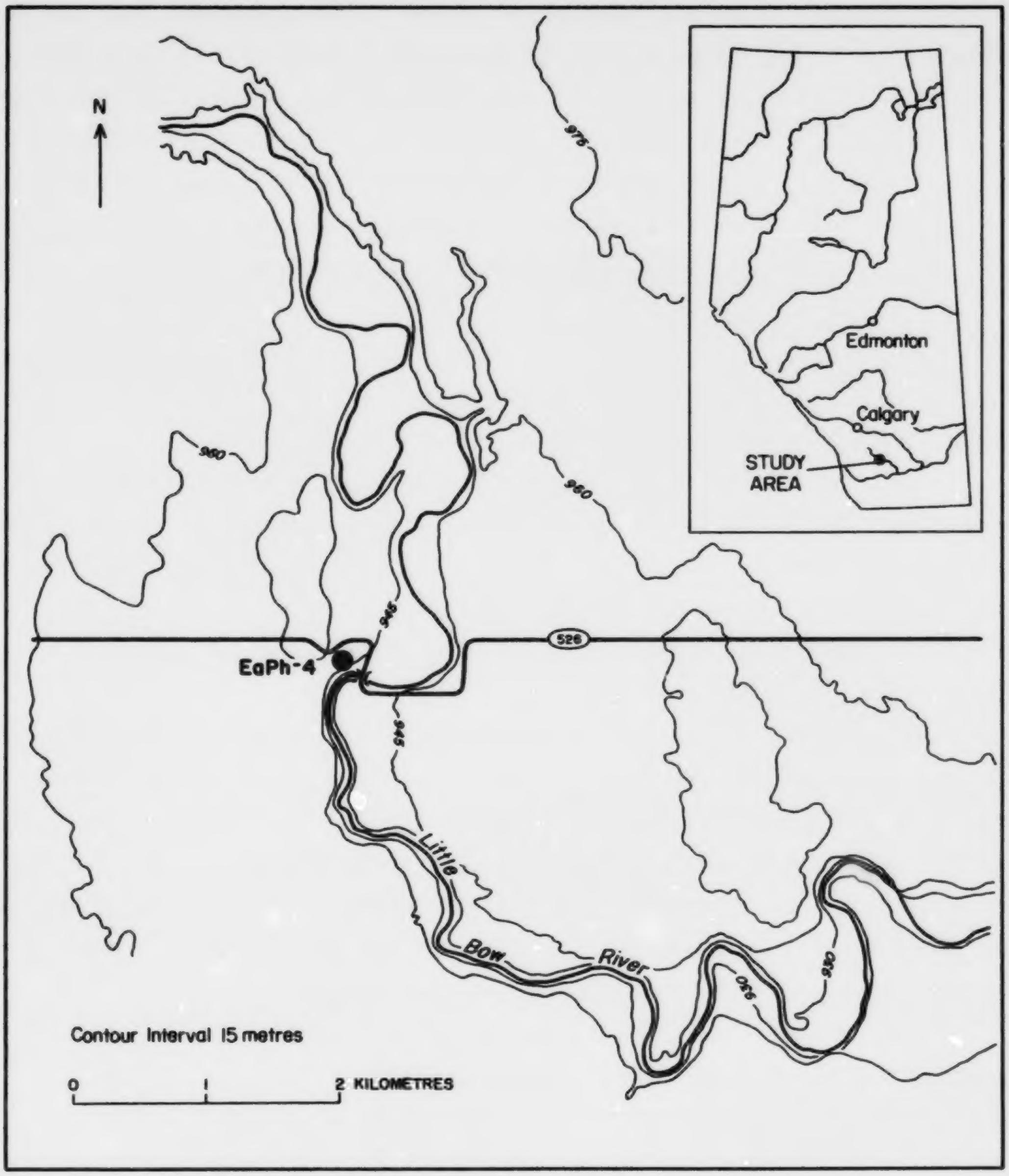
N
975
960
960
945
945
526
EaPh-4
Little Bow River
930
930
Edmonton
Calgary
STUDY AREA
Contour Interval 15 metres
0
1
2 KILOMETRES

Figure 21. Location of the Little Bow site.

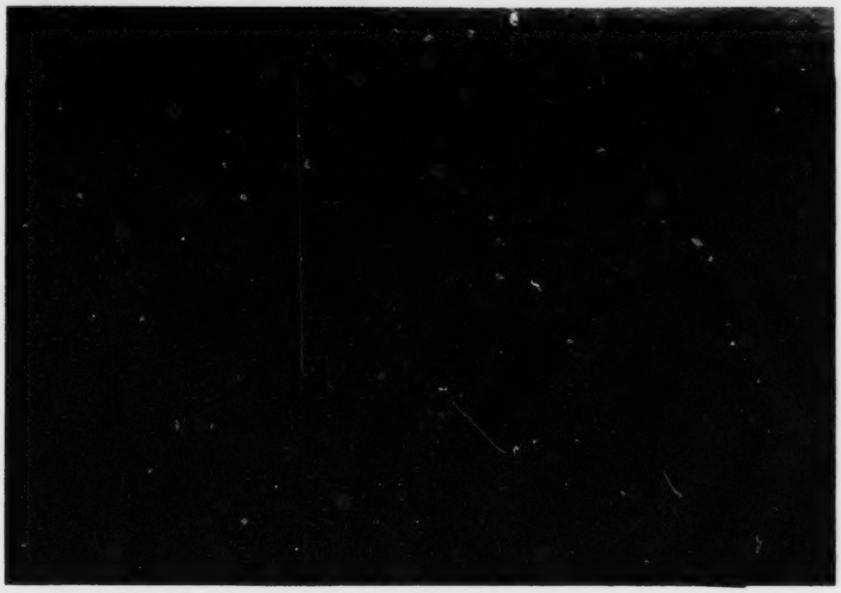

Figure 22. General view north of Little Bow site, EaPh-4, at edge of bluff overlooking the Little Bow River.

the vertical separation of the cultural material and the analysis of the recovered artifacts.

In spring of 1985, the highway right-of-way was graded, disturbing the upper 10 to 15 cm of the site and exposing a large quantity of cultural material. Mr. R.J. Vickers, Plains Archaeologist of the Archaeological Survey of Alberta, was contacted regarding the nature and extent of the exposed cultural remains. As a result of the discussions, the Archaeological Survey of Alberta agreed to fund a surface collection research project involving an introductory field methods class from the University of Calgary. A grid was established near the edge of the terrace overlooking the Little Bow River where the majority of exposed cultural materials was observed. The grid, based on 10 x 10 m units, was systematically collected and related to the excavation grid (Figure 23).

NATURAL STRATIGRAPHY

The soil at the site is a typical chernozem representative of a grassland vegetation community. A sod mat of 2 to 3 cm covered an AB

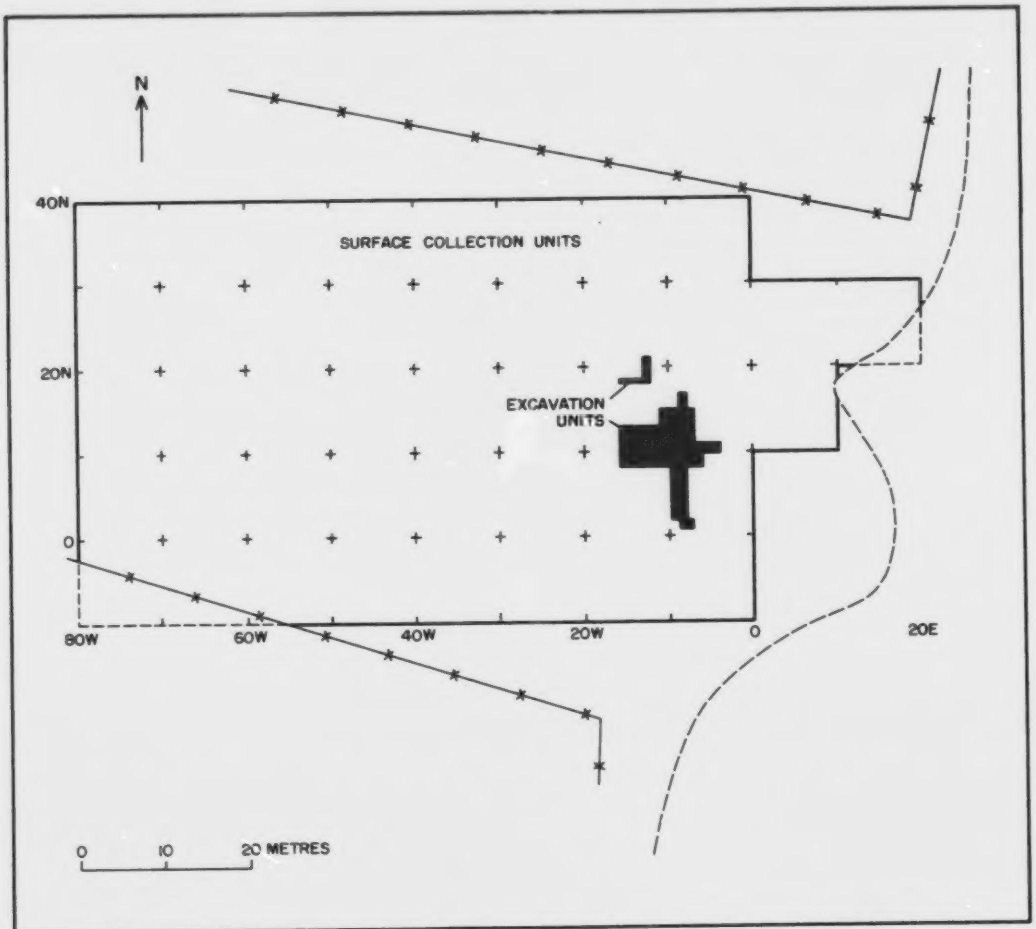
N
40N
20N
0
80W
60W
40W
20W
0
20E
SURFACE COLLECTION UNITS
EXCAVATION UNITS
0
10
20 METRES

Figure 23. Little Bow site: excavation and surface collection units.

horizon, between 3 and 8 cm thick. Underlying the AB horizon was a series of buried soil horizons (Ah) which were discernible on the basis of slight differences in colour and soil texture. These horizons occurred at depths of approximately 8 to 10 cm, 15 to 20 cm, 26 to 30 cm, 45 to 55 cm and 65 to 75 cm. Separating the buried soils were layers of lighter brown soil
which graded from a fine grained clay near the top of the profile to a medium to fine grained clay near the base of the excavation (Figure 24). The two components discussed below relate to the two upper visible horizons.

EXCAVATED CULTURAL MATERIALS

METAL ARTIFACTS (n = 1)

A thin triangular piece of iron strapping, probably representing the body portion of a metal projectile point, was recovered (Figure 25a).

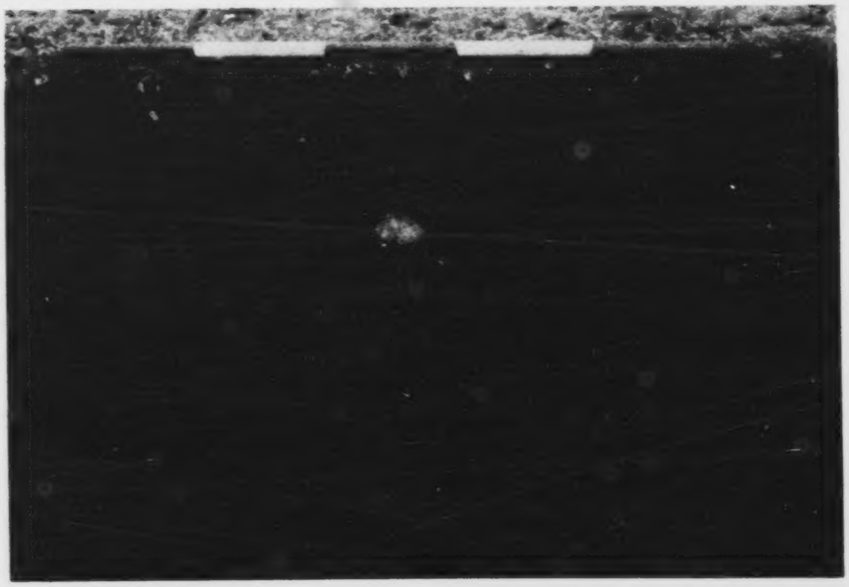

Figure 24. Soil profile exposed along "0" West, 15-16 North.

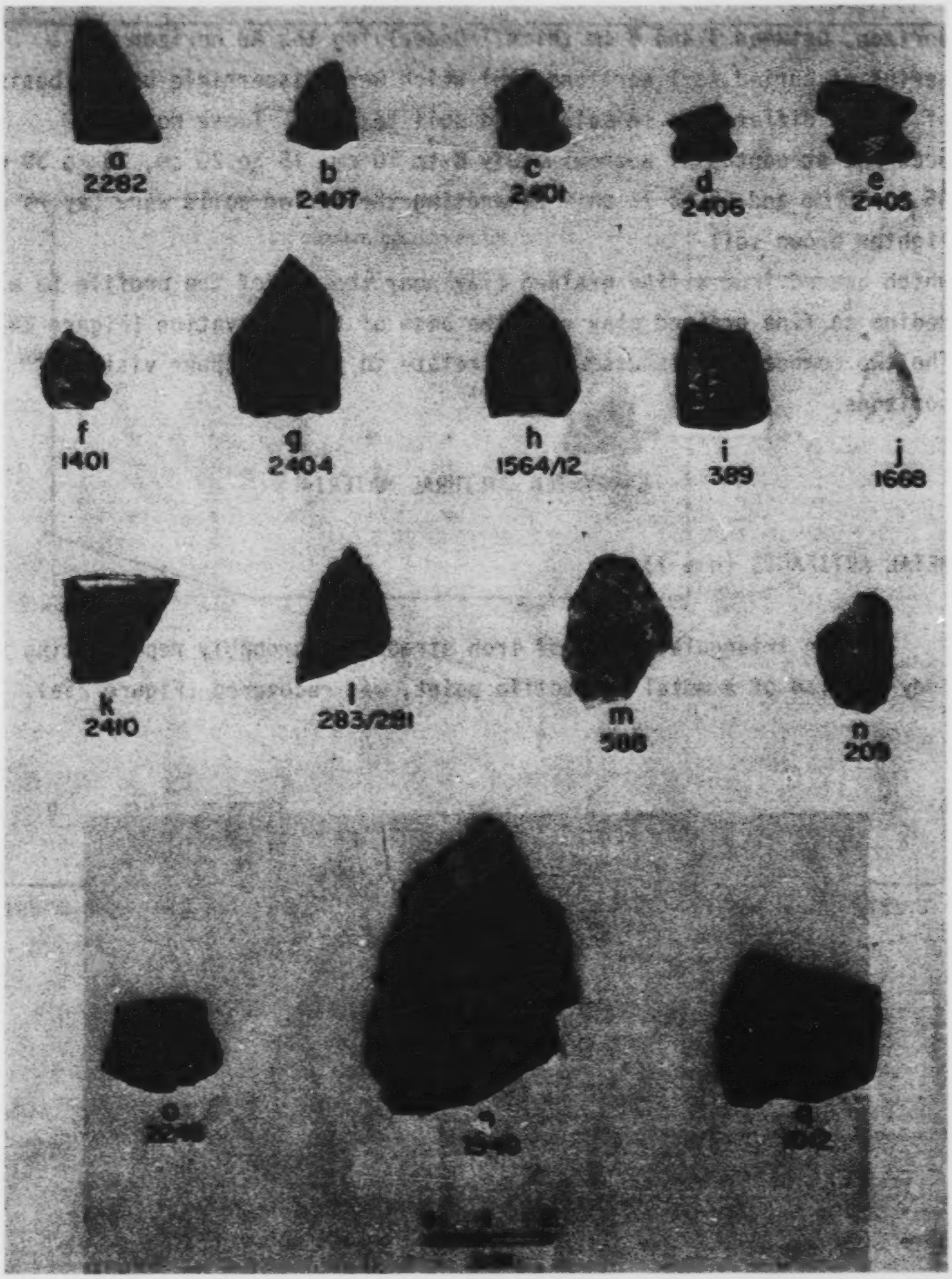
a
2282
b
2407
c
2401
d
2406
e
2405
f
1401
g
2404
h
1564/12
i
389
j
1668
k
2410
l
283/281
m
588
n
209
o
p
q

Figure 25. Projectile points (a-j) and bifaces (k-q) recovered in excavations.

The sharp lateral edges converge symmetrically to a point which is bent, probably as a result of impact.

LITHIC ARTIFACTS (n = 1047)

The lithic artifacts recovered from the excavations were sorted into fifteen general descriptive categories. Those categories exhibiting regularities in internal variation were further subdivided into homogeneous morphological classes.

Projectile Points (n = 15)

The presence of lateral notches near the base of the body is characteristic of one complete (Figure 25b) and five incomplete (Figure 25c-f) projectile points. With the exception of one specimen (Figure 25d), all are relatively poorly made. Five are made of chert, one is quartzite.

Two incomplete small lanceolate projectile points (Figure 25g, h) were recovered. One is made of Knife River Flint, and one is quartzite. Two chert specimens (Figure 25i, j) are triangular; one is complete. Three specimens (two chert, one petrified wood) are tip fragments, and two chert items are well made bifacial medial fragments.

Bifaces (n = 9)

Two fragments, one quartzite (Figure 25k) and one chert (Figure 25l) are asymmetrical lanceolate medial sections. A quartzite item is classified as a symmetrical medial fragment (Figure 25m). Small, oval bifaces are represented by two chert fragments (Figure 25n, o). Two large bifacial fragments with irregular outlines are of petrified wood (Figure 25p). One chert specimen is a medial lanceolate fragment (Figure 25q). A small chert tip fragment of a biface was also recovered.

Unifaces (n = 1)

One chert uniface, lanceolate in outline, was recovered (Figure 26a).

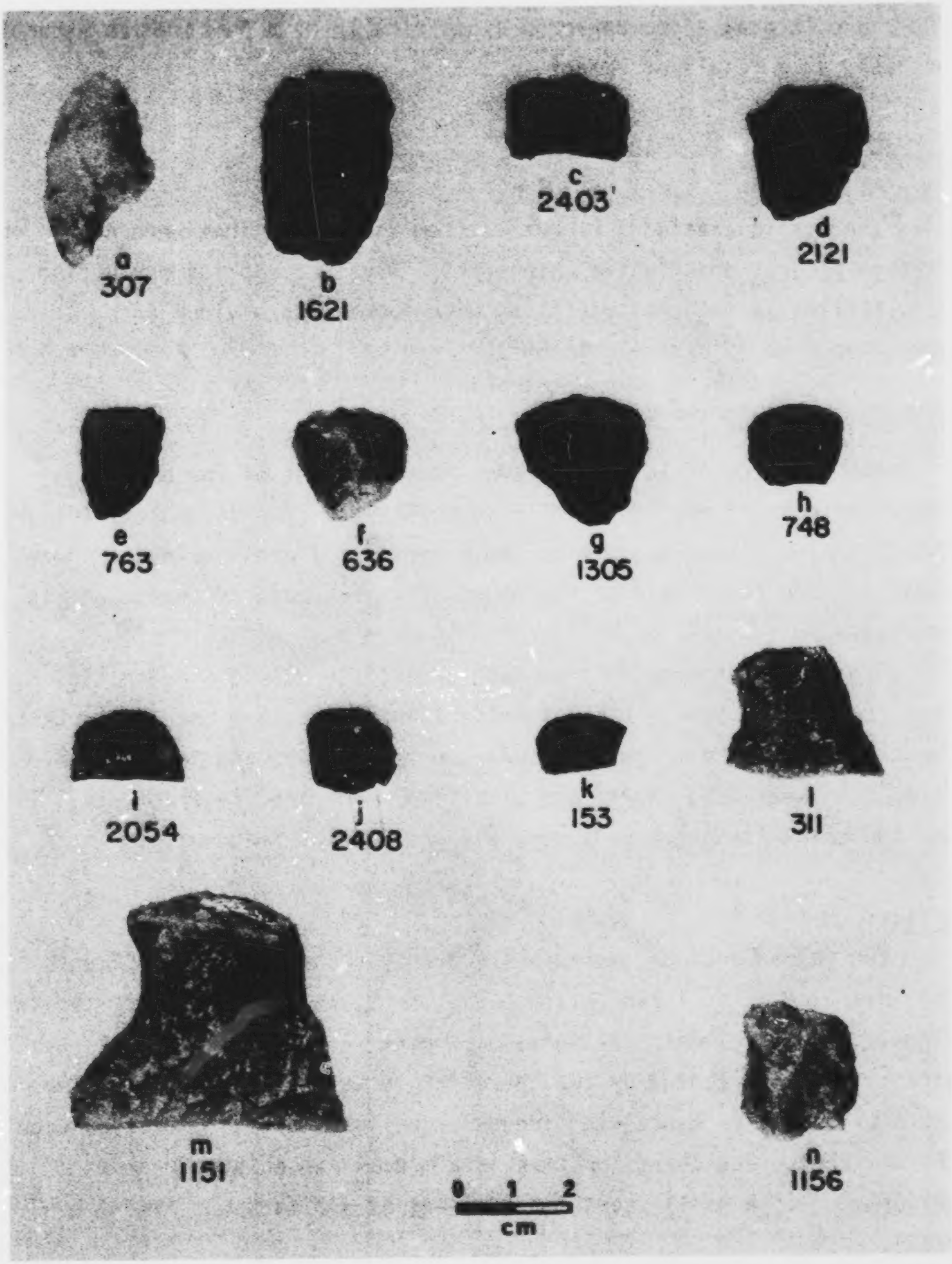
a
307
b
1621
c
2403'
d
2121
e
763
f
636
g
1305
h
748
i
2054
j
2408
k
153
l
311
m
1151
n
1156
0 1 2
cm

Figure 26. Uniface (a), scrapers (b-k), spokeshaves (l,m), and graver (n) recovered from excavations.

Scrapers (n = 12)

Two chert scrapers, rectangular in form, were recovered (Figure 26b, c). Four scrapers are domed (Figure 26d-g), ranging from almost triangular to steeply mounded (Van Buren 1974) in cross sections. Three are chert; one is petrified wood. Three scrapers were classed as flat pebble forms (Figure 26h-j), and one (Figure 26k) is a flat flake form. Two chert fragments were also identified as scrapers.

Miscellaneous Stone Tools

Four artifacts are characterized by a concave edge suitable for use as a spokeshave (Figure 26l, m). One thick quartzite flake fragment has a deliberately formed, prominent tip suitable for engraving purposes (Figure 26n).

Two edge retouched quartzite cobble spalls were recovered (Figure 27a, b). Edge retouched flakes were represented by seven quartzite, four chert, two petrified wood specimens and one Knife River Flint specimen (Figure 27c-e).

Five artifacts made on core nodules were classified as wedges (Figure 28a-c); three are chert, one is quartzite and one is petrified wood.

Three small spherical to cylindrical items exhibited severe battering and were classed as hammerstones (Figure 28f, g); one specimen is discoloured by what appears to be red ochre.

Two flat items (one sandstone, one siltstone) exhibiting smoothed surfaces were identified as abraders (Figure 28h).

Three split chert pebbles exhibiting edge retouch were recovered (Figure 28d, e). Two pebble tools (one chert, one quartzite) exhibiting flaking and some crushing and battering were also identified (Figure 29a).

The 19 cores recovered exhibit a wide range of nodule size, shape and method of reduction (Figure 29b, c); the majority are quartzite, and only two are chert.

Debitage

Flakes sufficiently complete to permit identification were sorted into one of three major classes: primary, secondary, and retouch

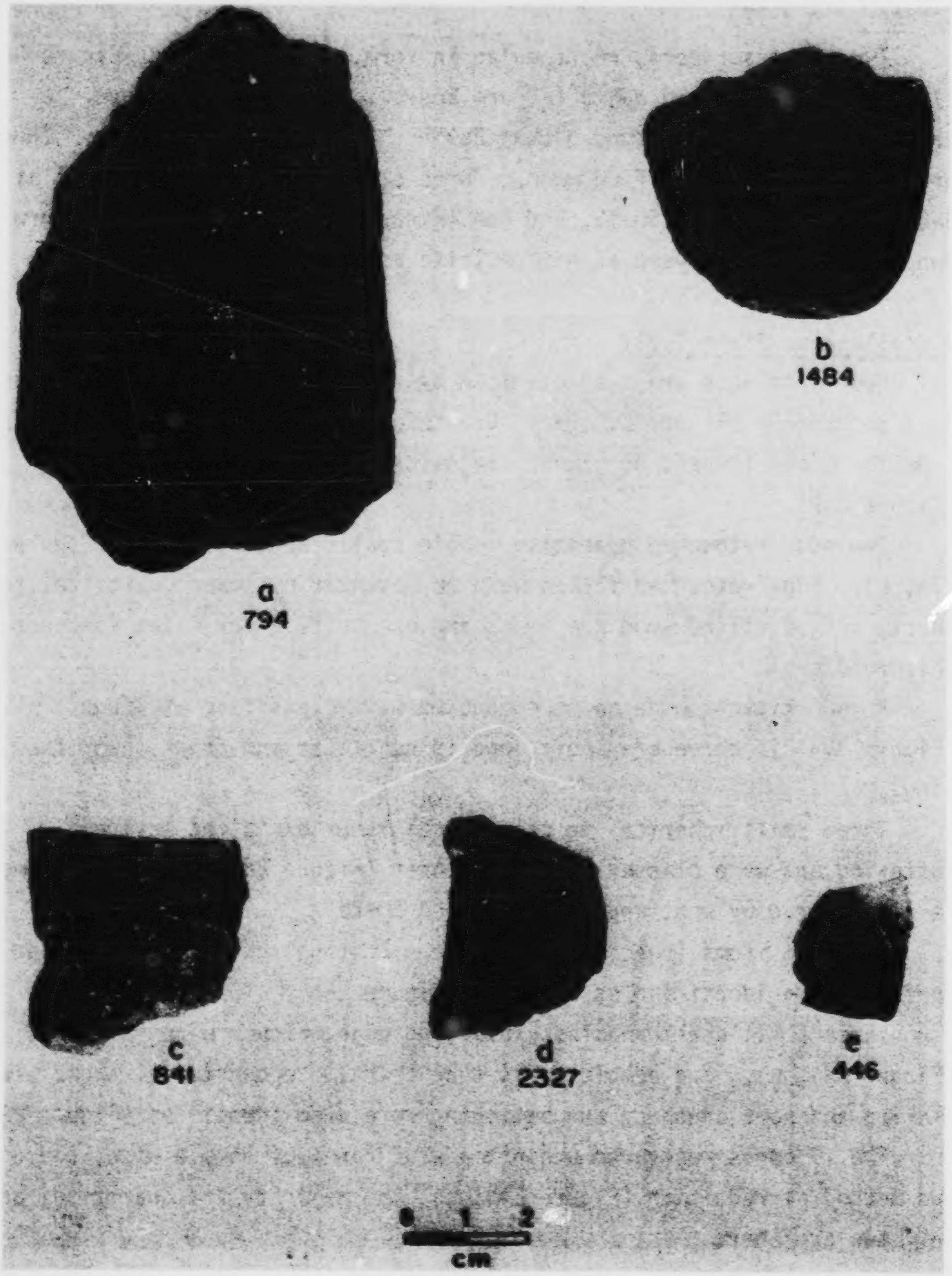
a
794
b
1484
c
841
d
2327
e
446
0 1 2
cm

Figure 27. Edge retouched cobble spalls (a,b) and edge retouched flakes (c-e) recovered from excavations.

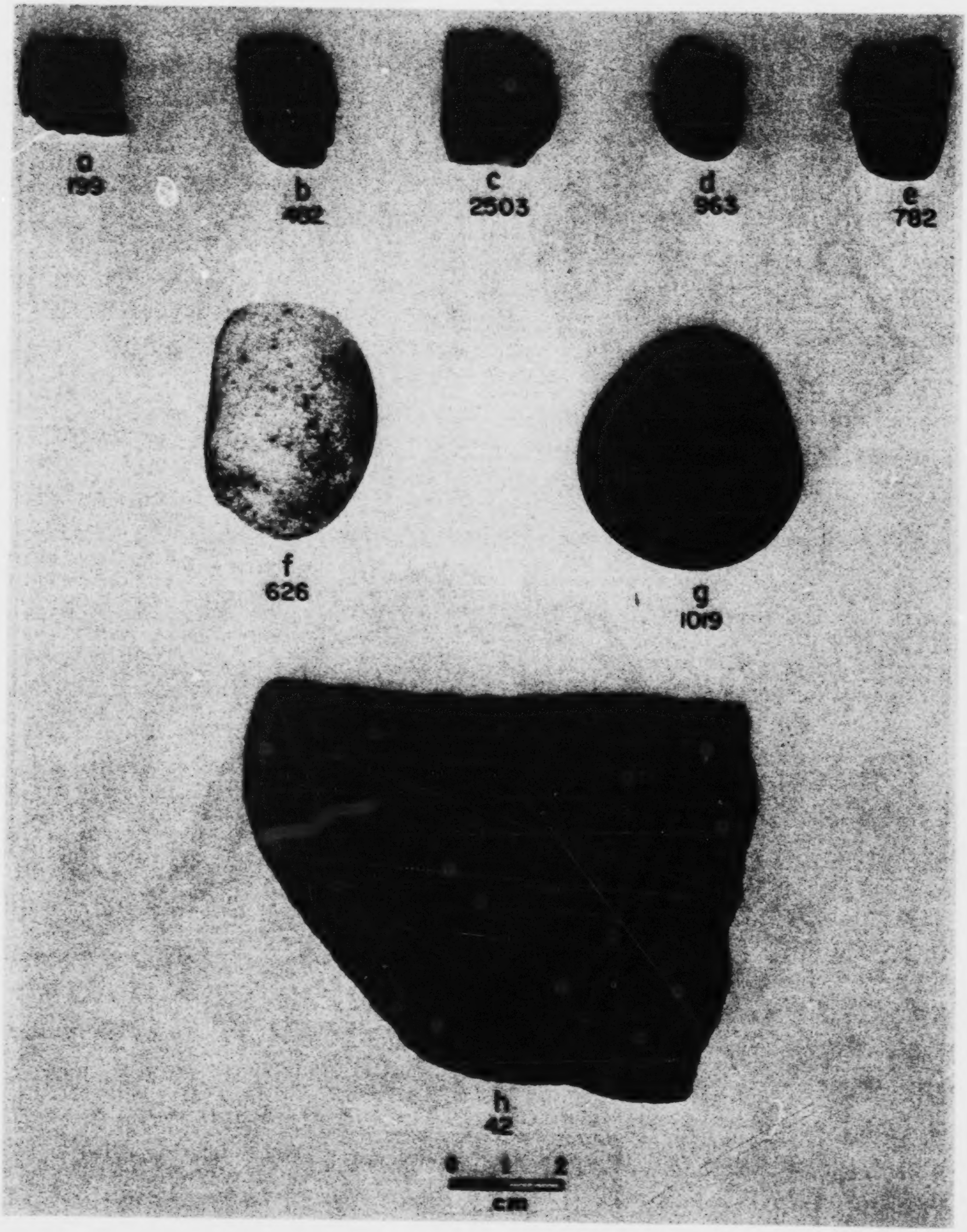
a
199
b
482
c
2503
d
963
e
782
f
626
g
1019
h
42
0 1 2
cm

Figure 28. Wedges (a-c), split pebbles (d,e), hammerstones (f,g), and abrader (h) recovered from excavations.

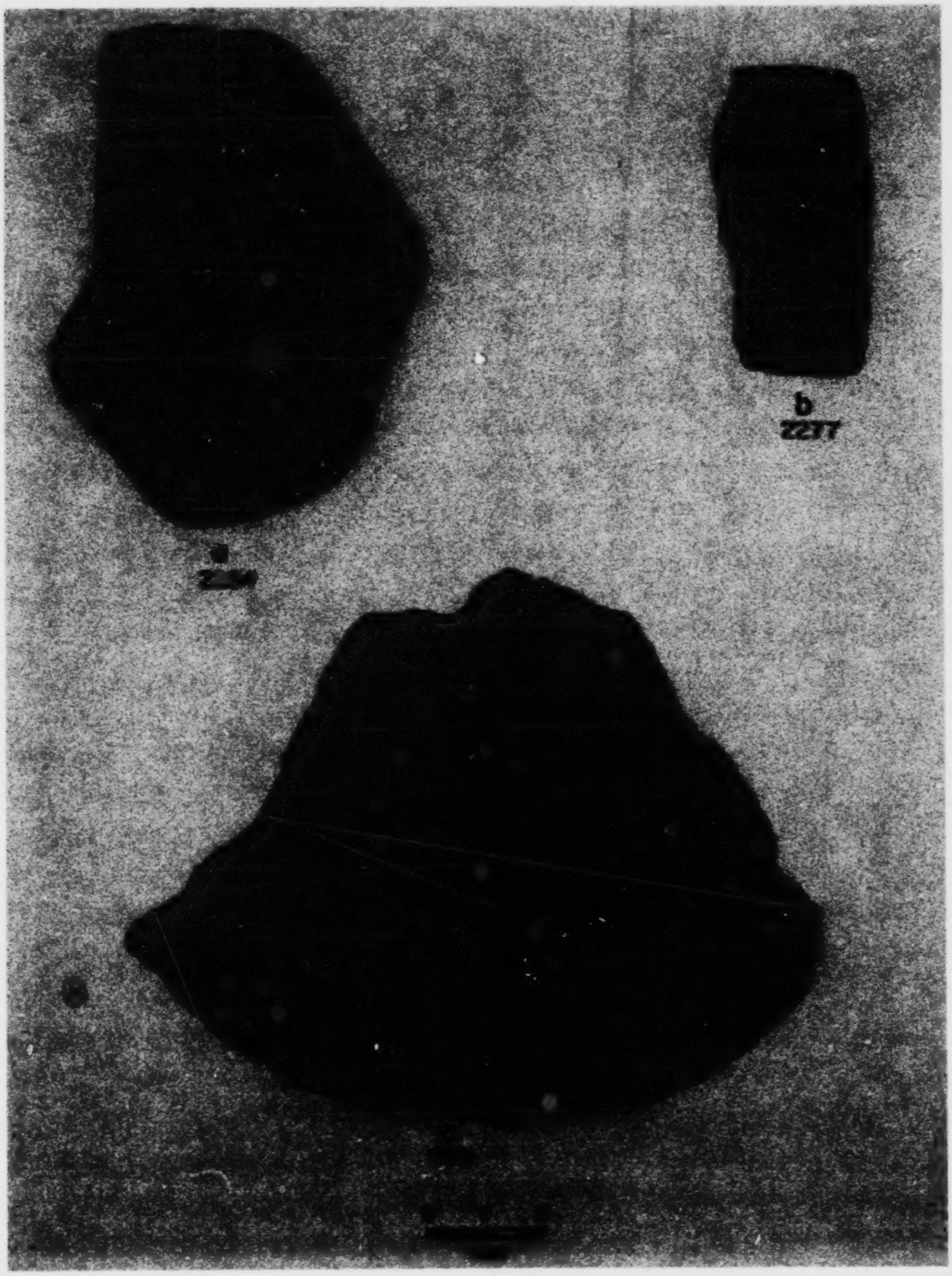

Figure 29. Pebble tool (a) and cores (b,c) recovered from excavations.

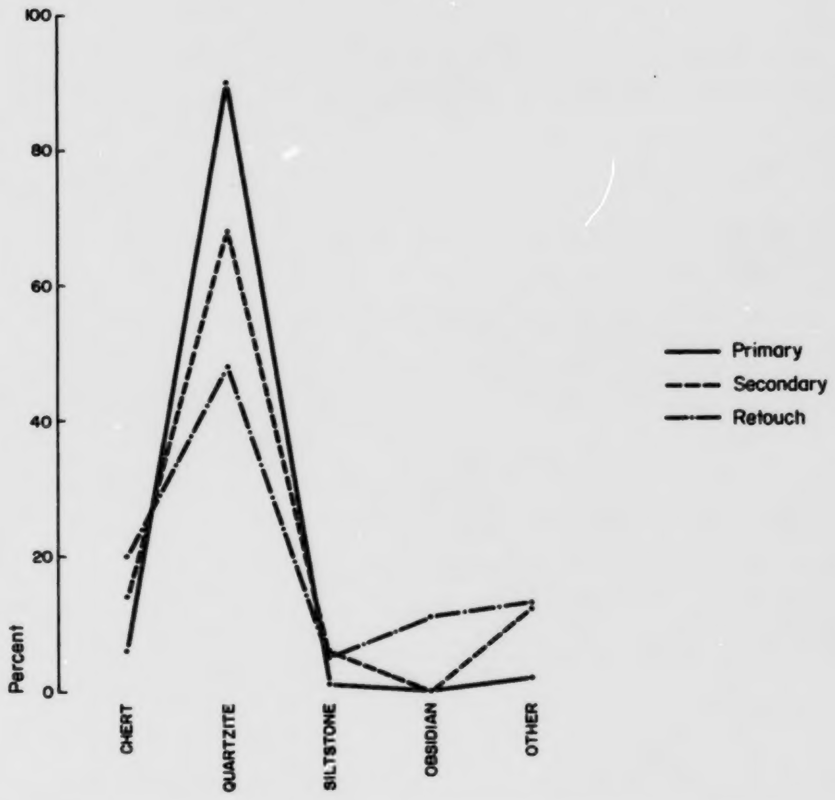

Figure 30. Frequencies of debitage types from excavations.

flakes. Of the 954 pieces of debitage recovered, 120 (12.58%) are primary flakes, 37 (3.88%) are secondary flakes, 114 (11.95%) are retouch flakes, and one (0.10%) is a bifacial trimming flake. Indistinguishable flake fragments comprise 51.36% (n = 490) and shatter represents 20.13% (n = 192) of the sample recovered. Figure 30 illustrates the proportionate association of the identifiable flake types with material types. The majority of all flake types are quartzite, while chert is the next most common.

CERAMICS

Of the 609 potsherds excavated, 2.79% (n = 17) are rim sherds and the remainder are body sherds. Approximately 34.5% of the body sherds can be associated with a specific rim sherd/vessel. General preservation and exfoliation processes have resulted in many sherds having little potential for reconstruction of basic shape and method of manufacture. A layer of carbonized material occurs on the interior surface of 35 of the pot sherds (5.75%).

Eight distinct vessel types have been identified (Figure 31). Each is characterized by distinct rim and body configurations (Figure 32), surface treatment, decoration, and temper. Vessels 1 to 5 have a hardness between 3.5 and 5.5 on Mohs scale of hardness, and Vessels 6 to 8 have a hardness of less than 3.5.

Vessel 1 was defined on the basis of two rim sherds (Figure 31a, b). Decorative characteristics of these sherds include a diagonally placed series of linear impressions on the rim and a row of diagonally impressed, deep punctates placed below the edge of the outer lip. The rim sherds exhibit a gently s-shaped configuration formed by a broad rim, a mildly constricted neck, and remnants of expanding shoulders. The rim, approximately 11 mm wide, slopes sharply towards the exterior of the vessel. The maximum thickness of the shoulder sherds is approximately 11 mm. The exterior of the vessel has been smoothed to a uniform surface. The texture of the clay matrix is hard and grainy; temper consists of small micaceous specks, less than 2 mm in diameter. The colour of the vessel ranges from light brown at the shoulder to black (carbonaceous) at the rim.

Vessel 2 is also defined on the basis of two rim sherds (Figure 31e). It is very similar to Vessel 1, differing only in clarity of the rim impressions, temper, and possibly in surface treatment. The rim is broad, 13.5 mm wide, and gently sloping to the exterior of the vessel. The exterior of the vessel below the rim was impressed with a coarse, knotted twine or perhaps fabric. This surface has been smoothed over, making recognition of the surface treatment difficult. The paste is coarse and granular, containing sand and crushed granitic temper up to 3 mm in diameter. The sherds are a uniform dark brown colour.

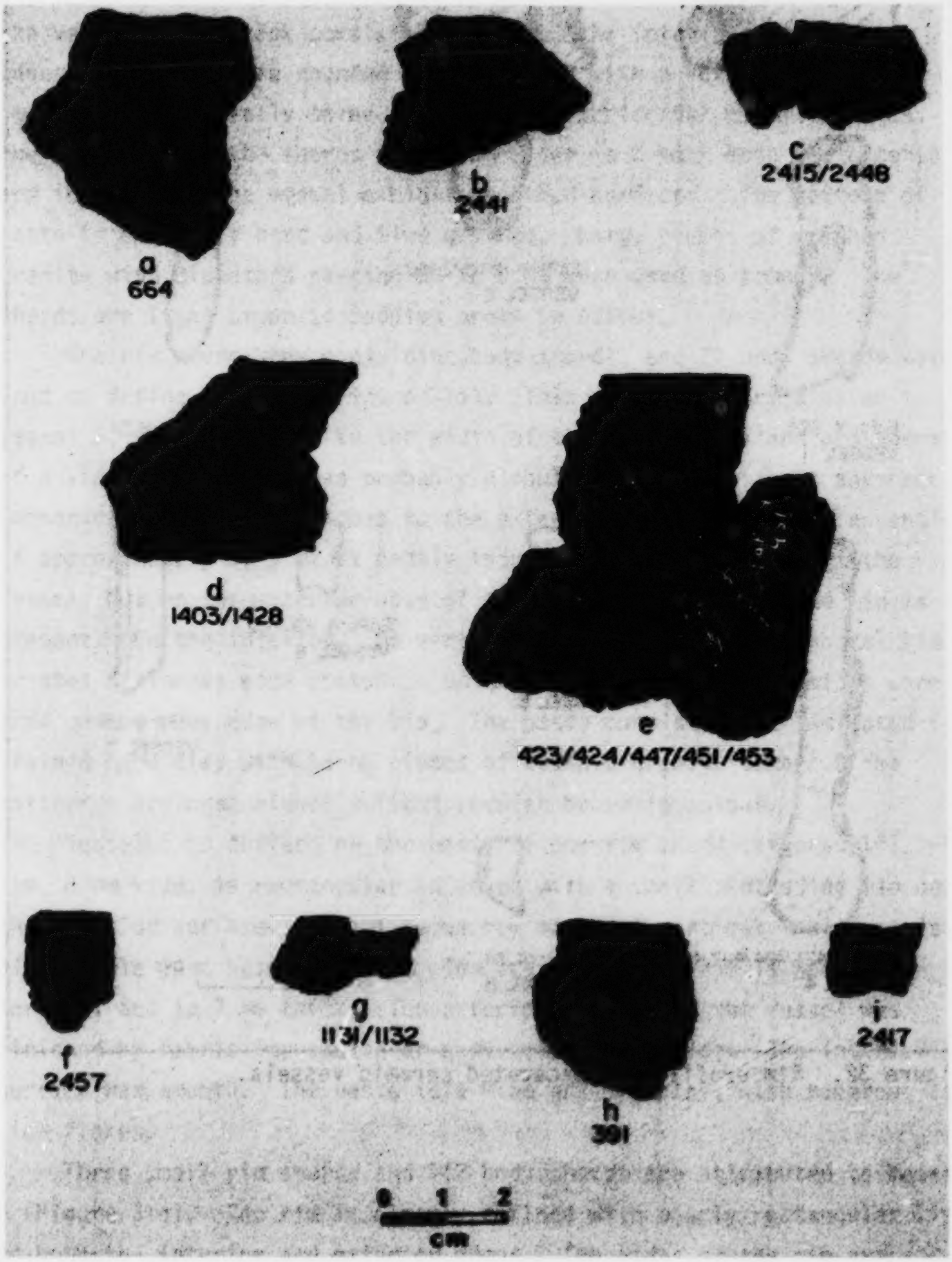
a
664
b
2441
c
2415/2448
d
1403/1428
e
423/424/447/451/453
f
2457
g
1131/1132
h
391
i
2417
0
1
2
cm

Figure 31. Ceramic vessels recovered from excavations.

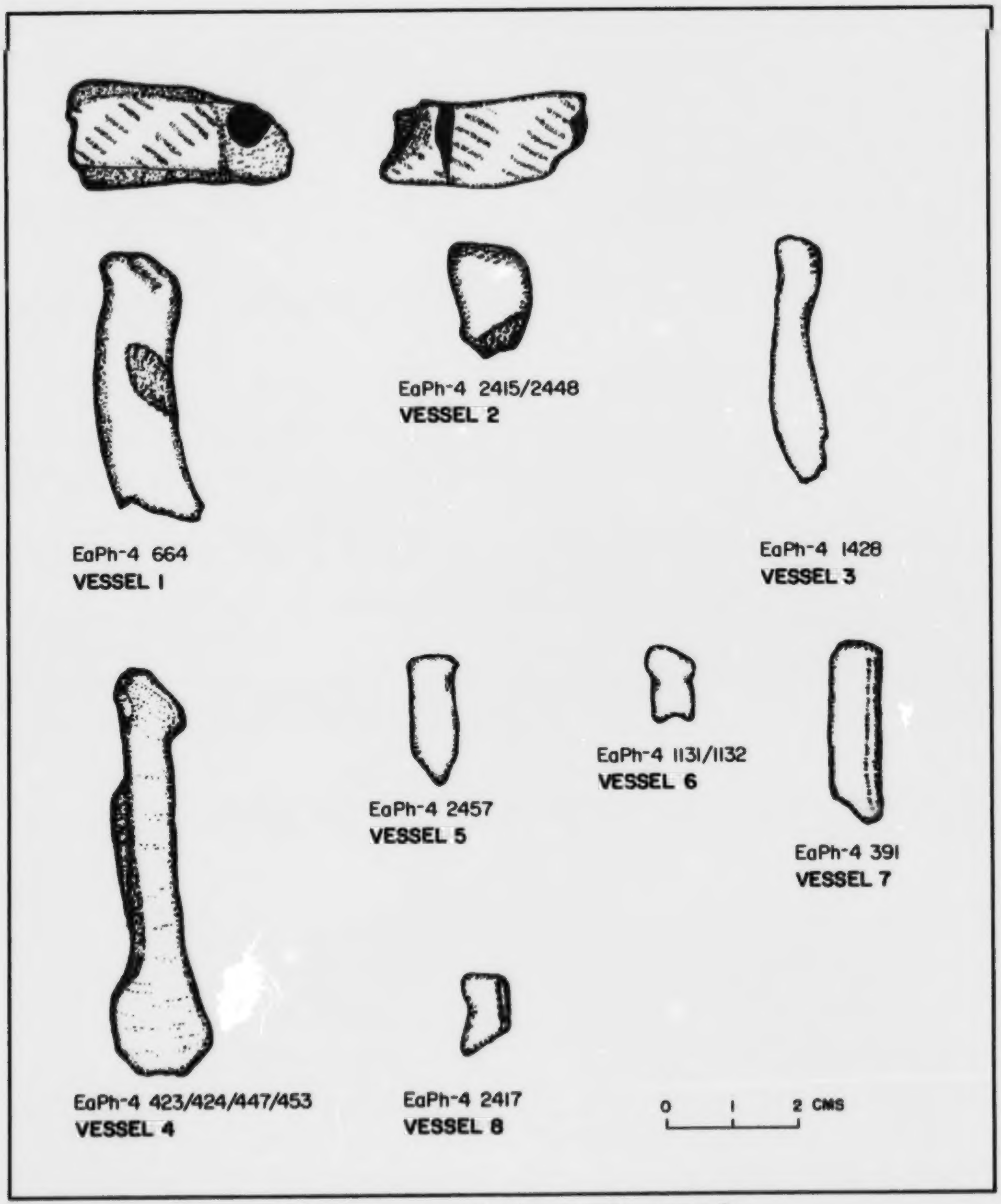
EaPh-4 2415/2448
VESSEL 2
EaPh-4 664
VESSEL 1
EaPh-4 1428
VESSEL 3
EaPh-4 1131/1132
VESSEL 6
EaPh-4 2457
VESSEL 5
EaPh-4 391
VESSEL 7
EaPh-4 423/424/447/453
VESSEL 4
EaPh-4 2417
VESSEL 8
0
1
2 CMS

Figure 32. Rim profiles of excavated ceramic vessels.

Three rim sherds and 31 body sherds were used to define Vessel 3 (Figure 31d). This vessel has an approximately rectangular rim, 9 mm in width, from which the shoulders curve gradually outward, indicating that the vessel lacked neck constriction. Both the interior and exterior edges of the rim were rounded and decorated with a vertical series of impressions, generally three to four short horizontal parallel lines. The thickness of the sherds at the shoulder is 8 mm. Both the exterior and interior of the vessel exhibit smoothed surfaces. The texture of the paste is extremely hard and fine grained. Large pieces of crushed granite with diameters ranging up to 3 mm were used as temper. The sherds are light brown to reddish brown in colour.

One rim sherd, the conjoining body sherds, and 21 body sherds were used to define Vessel 4 (Figure 31e). This vessel is very similar to Vessel 3, differing only in the width of the rim (12 mm) and protuberance of a lip. This vessel was probably globular in shape without any neck constriction. The rim slopes to the exterior of the vessel at an angle of approximately 30°; it is gently incurvate on the interior of the vessel, but on the exterior edge of the rim, a very pronounced lip is present. On the interior, the vertical series of short horizontal lines creates a sinuous edge contour. On the exterior, the impressions were made on the very edge of the lip. The paste consists of a laminated fine grained hard clay with large pieces of crushed granite temper. The potsherds are predominantly light reddish brown in colour.

Vessel 5 is defined on the basis of one rim sherd (Figure 31f). The rim, 8 mm wide, is rectangular in shape with a small protruding lip on the exterior surface. A continuous row of short vertical incisions is discernible just below the lip. The body below the rim is nearly vertical and is 7 mm thick. The exterior surface of the vessel was finished by fabric impression or cord wrapped paddling. The interior surface was smooth. The paste is a fine grained clay, with numerous fine mica flakes.

Three small rim sherds and 142 body sherds are attributed to Vessel 6 (Figure 31g). The rim is clearly defined with nearly rectangular lips on both the interior and exterior edges. The sides of the rim are smoothed and the top slopes gently to the exterior of the vessel.

Immediately below the rim, the body wall curves gently outward. The body of the vessel exhibits coarse cord marking which was subsequently smoothed over. Below the rim are broad deeply incised and irregularly spaced diagonal grooves. The paste is coarse grained in texture and contains large granite temper up to 3 mm in diameter.

One rim sherd and eight body sherds are attributed to Vessel 7 (Figure 31h). The rim, 8 mm wide, is subrectangular with a flat top and rounded edges and slopes gently toward the exterior of the vessel. The walls of the rim grade imperceptibly into the walls of the body which slope slightly outward from the rim. The maximum thickness of the body is 8.5 mm. Coarse cord marking, creating a corrugated appearance, characterizes the body. The paste is of medium texture, with small powdered granitic inclusions less than 2 mm in diameter.

Two rim sherds were used to define Vessel 8 (Figure 31i). The rim, 8 mm wide, has a flat top with interior and exterior lips. Below the rim, the vessel walls slope gently outward. The surface of the vessel immediately below the rim exhibits broad vertical incisions. The texture of the paste is medium grained, with fine micaceous temper up to 3 mm in diameter.

FAUNAL MATERIALS

The bone fragments recovered during the excavations totalled 8545 g. Because of generally poor preservation, small compact dense bone dominates the identifiable bone assemblage, with most of the long bone recovered in long splinters. The identifiable faunal assemblage consists almost totally of bison (Bison bison) remains. Post-cranial elements dominate the assemblage. Axial elements include the atlas, cervical, and thoracic vertebrae, mandible, scapula, acetabulum, and several rib fragments. Appendicular elements include numerous carpals, tarsals and phalanges, and the articular sections of limb bones. Based on the presence of three proximal right metatarsals, the miniumum number of bison represented is three. Also recovered were the maxilla of a Richardson's ground squirrel (Spermophilus richardsoni), the terminal phalanx (claw) of a canid (Canis sp.), the proximal end of a coracoid bone of a medium sized bird, and the auditory bulla of a rodent.

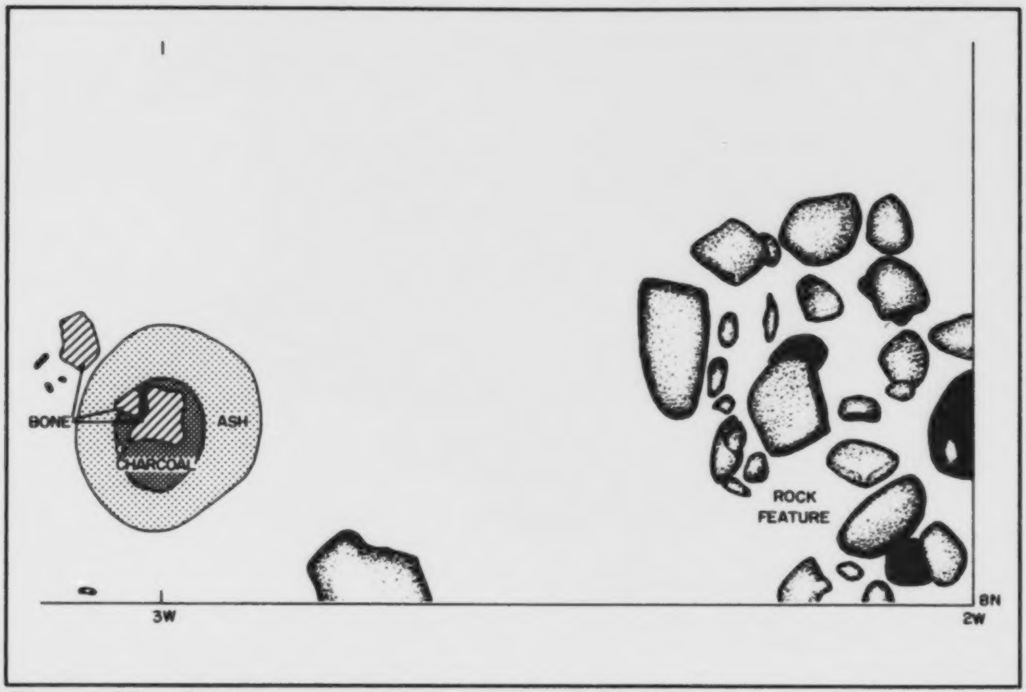

Figure 33. Features exposed in units 9N 2W, 3W.

FEATURES

Two well defined features were encountered during the excavations (Figure 33). One feature consists of a cluster of cobbles, including 12 fire broken cobbles, 15 fire burned cobbles, and 12 unmodified cobbles. The other feature consists of an excavated hearth containing concentric distributions of heat discoloured soil, ash, charcoal, and bone.

A third feature complex consists of six bone uprights. One is an ungulate (probably bison) long bone (Figure 34), while five consist of upright bison ribs. Four rib uprights are arranged in a straight line trending southwest-northeast, whereas the other rib upright appears to be aligned with the long bone upright in a similar southeast-northwest arrangement (Figure 35).

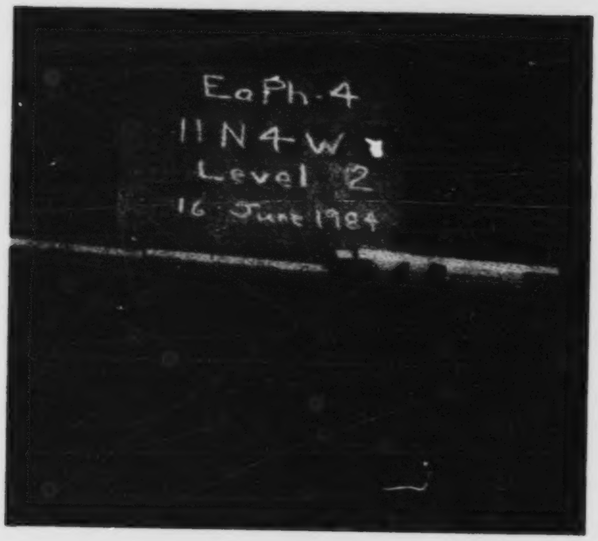
EaPh-4
11N4W
Level 2
16 June 1984

Figure 34. Plan view of bone upright exposed in situ in unit 11N4W, Level 2.

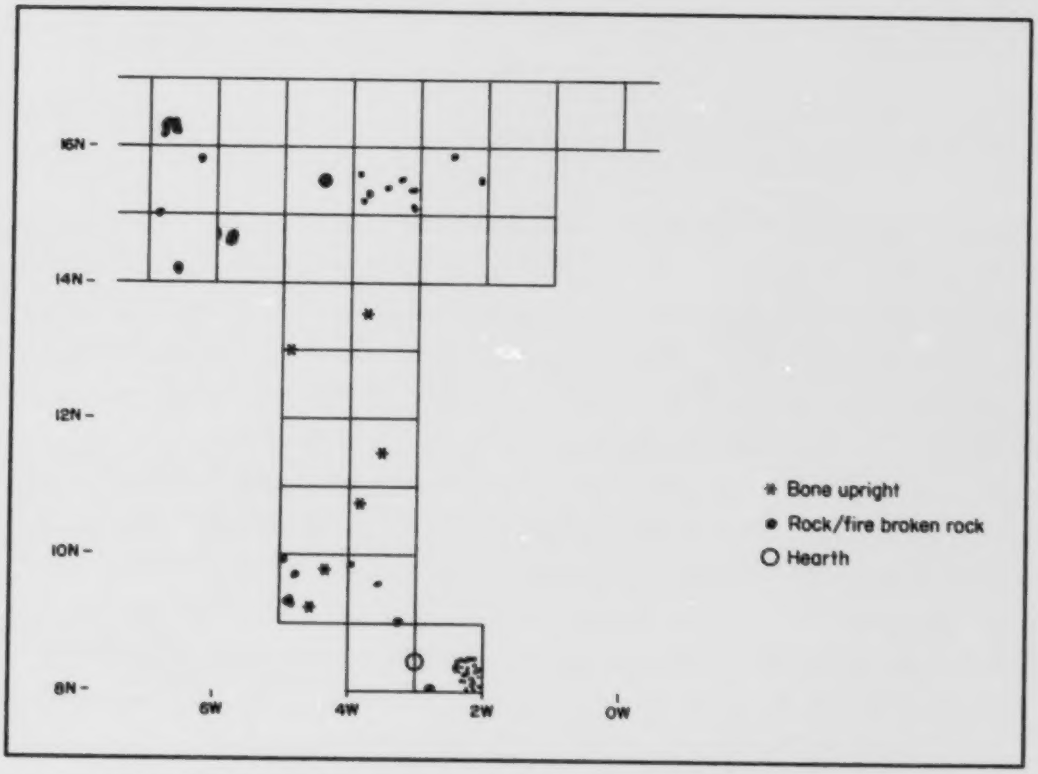
16N -
14N -
12N -
10N -
8N -
6W
4W
2W
0W
* Bone upright
● Rock/fire broken rock
O Hearth

Figure 35. Relationship of bone uprights to other features.

FIRE BROKEN ROCK

The amount of fire broken rock recovered from the excavation was 47,190 g. The weight of fire broken rock per excavation unit ranges from 10 to 3180 g. Most of these pieces are highly fragmented and are generally less than 5 cm in all three dimensions.

COMPONENT ANALYSIS

The two components excavated at the Little Bow site were defined on the basis of the stratigraphic occurrence of the items attributed to one metal artifact category, 14 lithic artifact categories, the identified morphological classes, and the identified ceramic vessels. Summaries of the distribution, by level, of these parameters are presented in Tables 5 and 6.

The single metal projectile point body fragment recovered occurred at 4 cm below surface. Also occurring exclusively in Level 1 are small lanceolate projectile points, gravers, wedges, and a wide variety of bifaces including small asymmetrical lanceolates, small symmetrical lanceolates, small oval forms, irregular and large lanceolate forms. Ceramic Vessels 2, 4, and 5 are also exclusively associated with Level 1. The shapes of these vessels are characterized by rims with generally inconspicuous to prominent lips and rims which slope to the exterior of the vessel. Bone from Level 1 submitted for radiometric analysis returned a date of 620±230 years B.P. (AECV 153c), suggesting that the cultural materials in this component are the remains of an occupation which occurred between approximately A.D. 1100 and A.D. 1560 (range of one standard deviation).

Common to both Level 1 and Level 2 are small, morphologically amorphous notched projectile points, domed scrapers, flat pebble scrapers, rectangular scrapers, abraders, split pebbles, and hammerstones. A variety of cores are also common to both levels. Fragments of Vessels 1, 3, and 6 are found in both Level 1 and Level 2. Vessel 1 is characterized by rim decoration similar to that observed on Vessel 2, and Vessel 3 is very similar to Vessel 4. Vessel 6 has no comparable counterpart in Level 1.

Table 5. Summary of frequency distribution of metal and lithic artifacts (excluding debitage) by level.

LEVEL	PROJECTILE POINTS	BIFACES	UNIFACES	SCRAPERS	SPOKESHAVES	GRAVERS	EDGE RETOUCHED COBBLE SPALLS
I	9	8	-	6	3	1	-
II	7	1	1	6	1	-	2
TOTAL	16	9	1	12	4	1	2

LEVEL	EDGE RETOUCHED FLAKES	WEDGES	SPLIT PEBBLES	HAMMERSTONES	ABRADERS	PEBBLE TOOLS	CORES	TOTAL
I	5	4	2	2	1	-	6	47
II	9	1	1	1	1	2	13	46
TOTAL	14	5	3	3	2	2	19	93

Table 6. Summary of frequency distribution of potsherds attributable to identified vessels by level.

LEVEL	VESSEL 1		VESSEL 2		VESSEL 3		VESSEL 4		VESSEL 5		VESSEL 6	
	RIM	BODY	RIM	BODY	RIM	BODY	RIM	BODY	RIM	BODY	RIM	BODY
I	2		2		3	31	1	25	1		2	140
II	1		-		1	-	-	-	-		1	2
TOTAL	3	0	2	0	4	31	1	25	1	0	3	142

LEVEL	VESSEL 7		VESSEL 8		UNIDENTIFIABLE BODY SHERDS			TOTAL
	RIM	BODY	RIM	BODY	THIN PLAIN	THICK PLAIN	UNCLASSIFIABLE	
I	-	-	-		63	47	82	399
II	2	8	1		144	2	47	209
TOTAL	2	8	1	0	207	49	129	608

Associated exclusively with Level 2 are well defined side notched projectile points, triangular projectile points, a uniface, edge retouched cobble spalls, and pebble tools. Ceramic Vessels 7 and 8 are associated exclusively with Level 2. Radiocarbon assay of bone from Level 2 returned a date of 450±70 years B.P. (AECV 154c), indicating occupation between A.D. 1570 and A.D. 1430 (range of one standard deviation).

On the basis of the analysis of the recovered artifact provenience, the morphological variations of artifacts classes, and the radiometric data, it is concluded that the two levels represent discrete prehistoric occupations. Some mixing has occurred, as evidenced by sherds of the same vessel occurring in both levels. For the sake of convenience, the two components have been named; the upper one is called the Carmangay component, and the lower one is called the Vulcan component.

SURFICIAL CULTURAL MATERIAL

LITHIC ARTIFACTS

Projectile Points (n = 9)

Two complete and one incomplete chert projectile points (Figure 36a, b, c) resemble the forms with well defined side notches recovered during the excavation program. However, those from the surface collection are more finely made. One chert specimen (Figure 36d) and one petrified wood specimen (Figure 36e) are symmetrically triangular in outline. One tip fragment is made of quartzite (Figure 36f). One chert specimen is a bifacially flaked medial section (Figure 36g). Two specimens are basal fragments (Figure 36h, i); one is made of chert, one of quartzite.

Bifaces (n = 9)

One fossiliferous chert specimen (Figure 36j) is asymmetrically lanceolate in outline. One quartzite item (Figure 36l) is irregularly oval in outline.

Two small, finely made fragments are of obsidian (Figure 36m, n); these may represent the bases of projectile points. Two other finely made bifacial edge fragments are chert (Figure 36k, o).

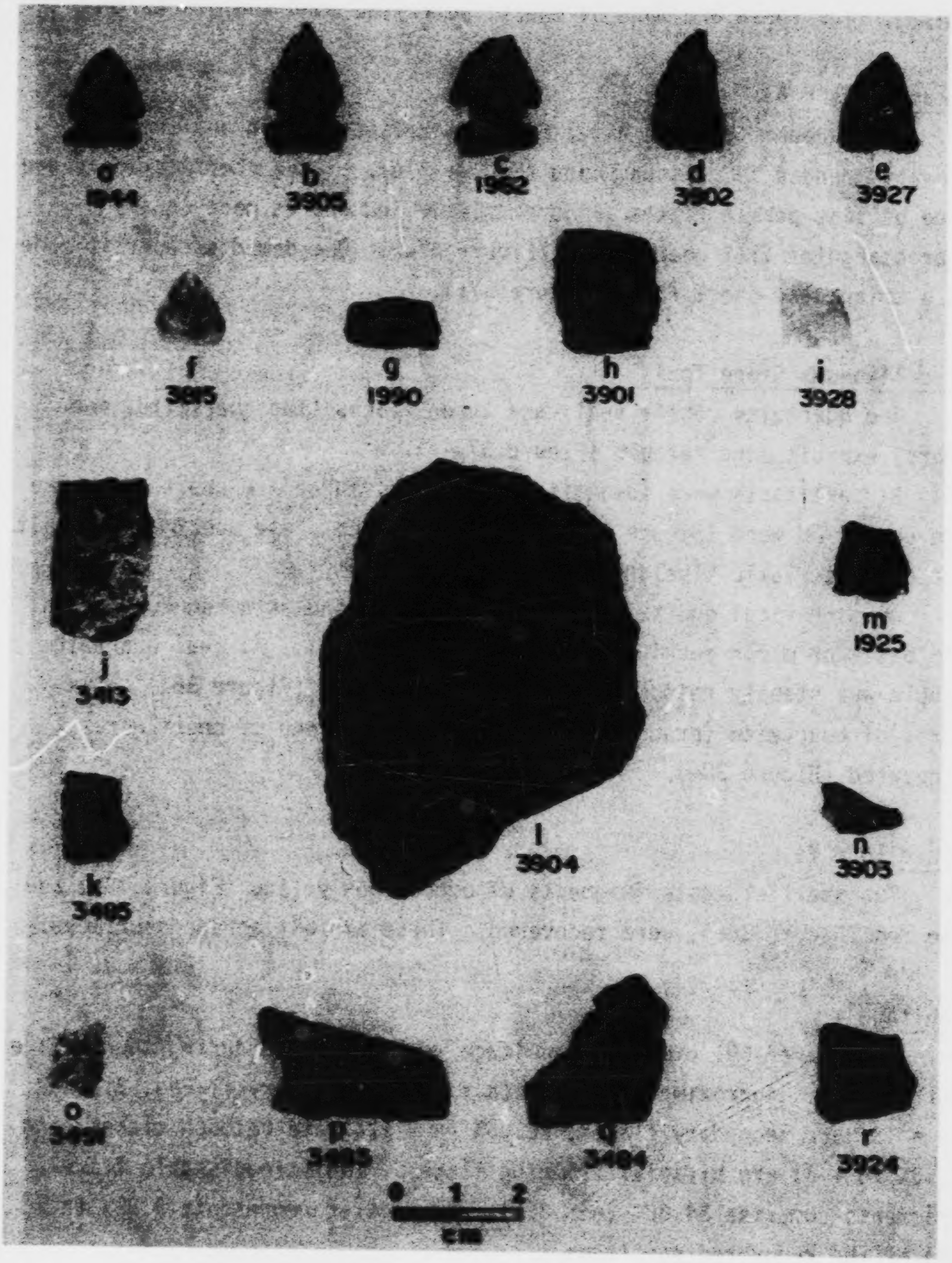
a
1944
b
3905
c
1962
d
3902
e
3927
f
3815
g
1990
h
3901
i
3928
j
3413
l
3904
m
1925
k
3485
n
3903
o
3491
p
3483
q
3484
r
3924
0 1 2
cm

Figure 36. Projectile points (a-i) and bifaces (j-r) recovered from surface collections.

Three coarsely made bifacial fragments were also collected (Figure 36p, q, r). These are made of chert, petrified wood and quartzite.

Scrapers (n = 6)

One scraper of Knife River Flint is rectangular in outline and steeply mounded in cross section (Figure 37o). Three chert scrapers are made on flat pebble flakes (Figure 37l-n), and one is made on a subrectangular flat chert flake (Figure 37k). One domed scraper is made on a triangular chert flake (Figure 37j).

Miscellaneous Stone Tools

One quartzite cobble spall and three flakes (two quartzite, one chert) exhibit edge retouch (Figure 37g-i).

Six artifacts were identified as wedges; three are chert and three are petrified wood (Figure 37a-f). The three complete specimens exhibit the characteristic bipolar flake removal pattern.

One spherical quartzite pebble was identified as a hammerstone on the basis of minor pecking on one end (Figure 38a). An oval quartzite pebble was steeply retouched along one narrow end (Figure 38d). Six cores of quartzite (predominantly unifacial) and one of chert were recovered (Figure 38e).

Ochre (n = 2)

Two small elongate fragments of ochre, one yellow (Figure 38b) and one red (Figure 38c), were recovered. These exhibit abraded surfaces.

Debitage

A total of 601 pieces of debitage were recovered during the surface collections. Approximately 12.5% (n = 75) are primary flakes, 2.16% (n = 13) are secondary flakes, 20.96% (n = 126) are retouch flakes, and 0.50% (n = 3) are bifacial trimming flakes. Indistinguishable flake fragments comprise 54.08% (n = 325), and shatter represents 9.82% (n = 59) of the recovered specimens.

The proportions of identifiable flake types by material types are illustrated in Figure 39. Quartzite is the predominant material

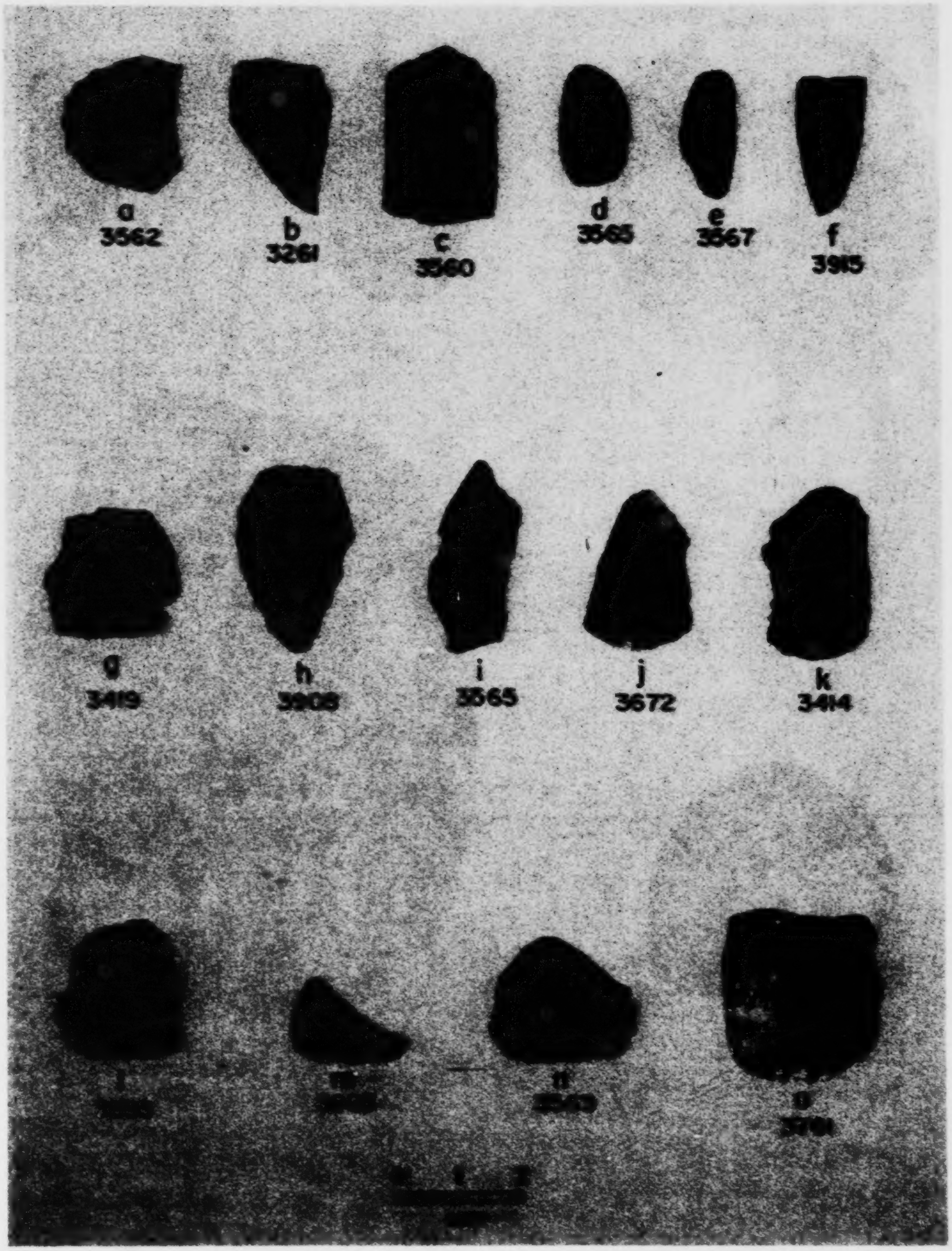
a
3562
b
3261
c
3560
d
3565
e
3567
f
3915
g
3419
h
3908
i
3565
j
3672
k
3414
n
o

Figure 37. Wedges (a-f), edge retouched flakes (g-k), and scrapers (j-o) recovered from surface collections.

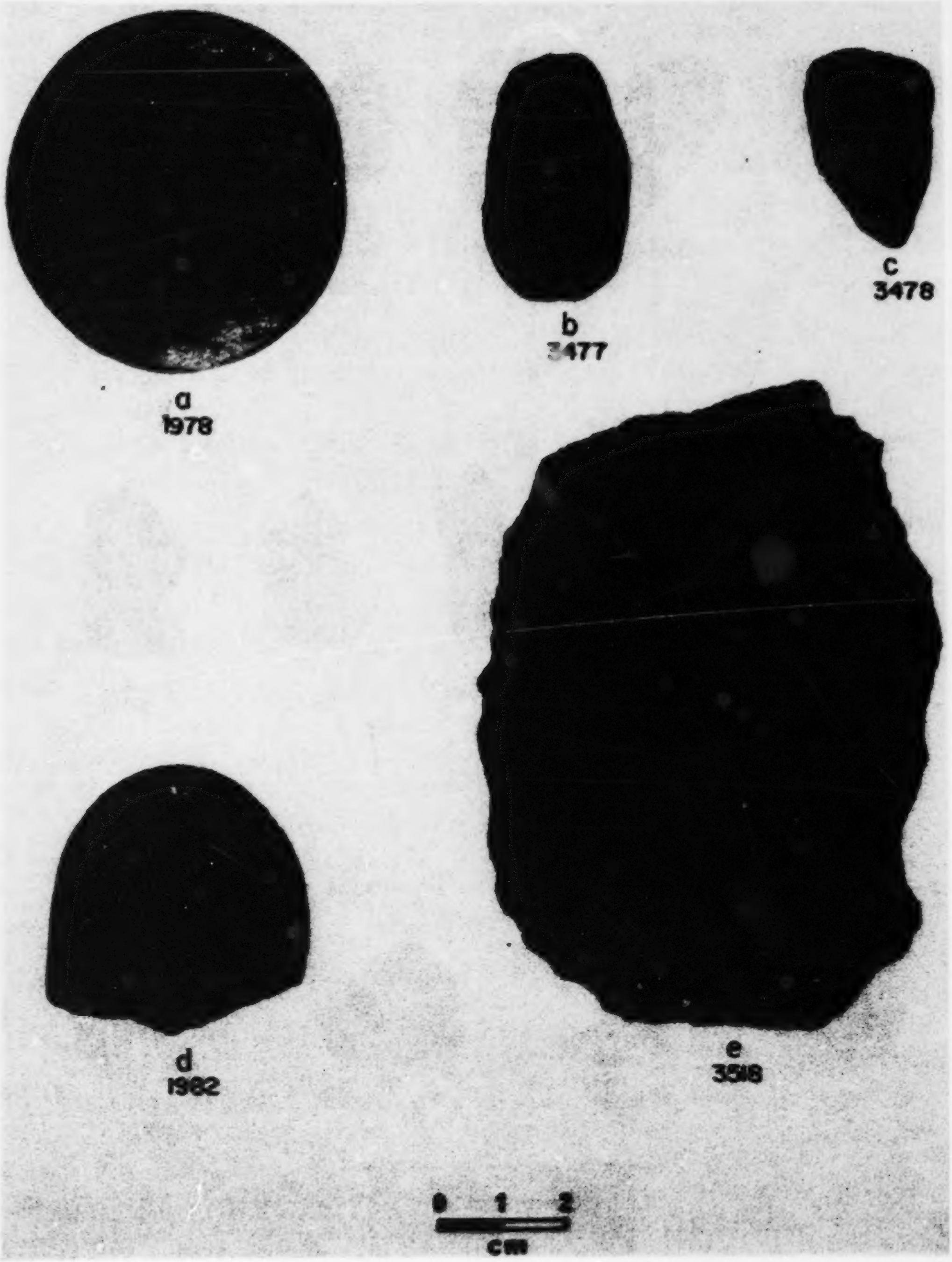
a
1978
b
3477
c
3478
d
1982
e
3518
0 1 2
cm

Figure 38. Hammerstone (a), ochre (b,c), pebble tool (d) and core (e) recovered from surface collections.

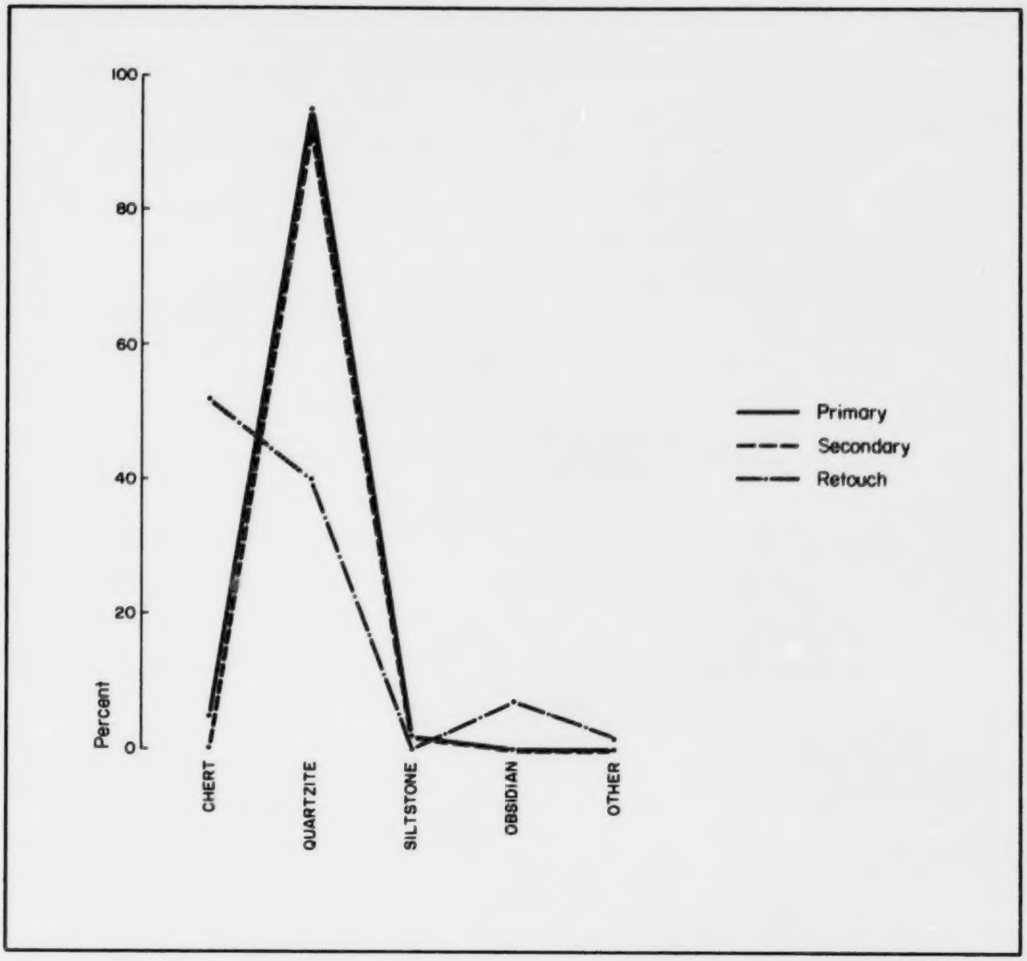

Figure 39. Frequencies of debitage types from surface collections.

represented in the debitage followed by chert, petrified wood, obsidian, siltstone and Knife River Flint, in descending order of frequency.

CERAMICS

Thirty-eight potsherds were obtained from the surface collections. Approximately 16% (n = 6) are rim sherds and 84% (n = 32) are body sherds. Twenty-six of the potsherds (81%) are carbonized on the interior surface.

On the basis of distinct rim and body morphology (Figure 40), five different vessels are represented in the surface collection. Only one of

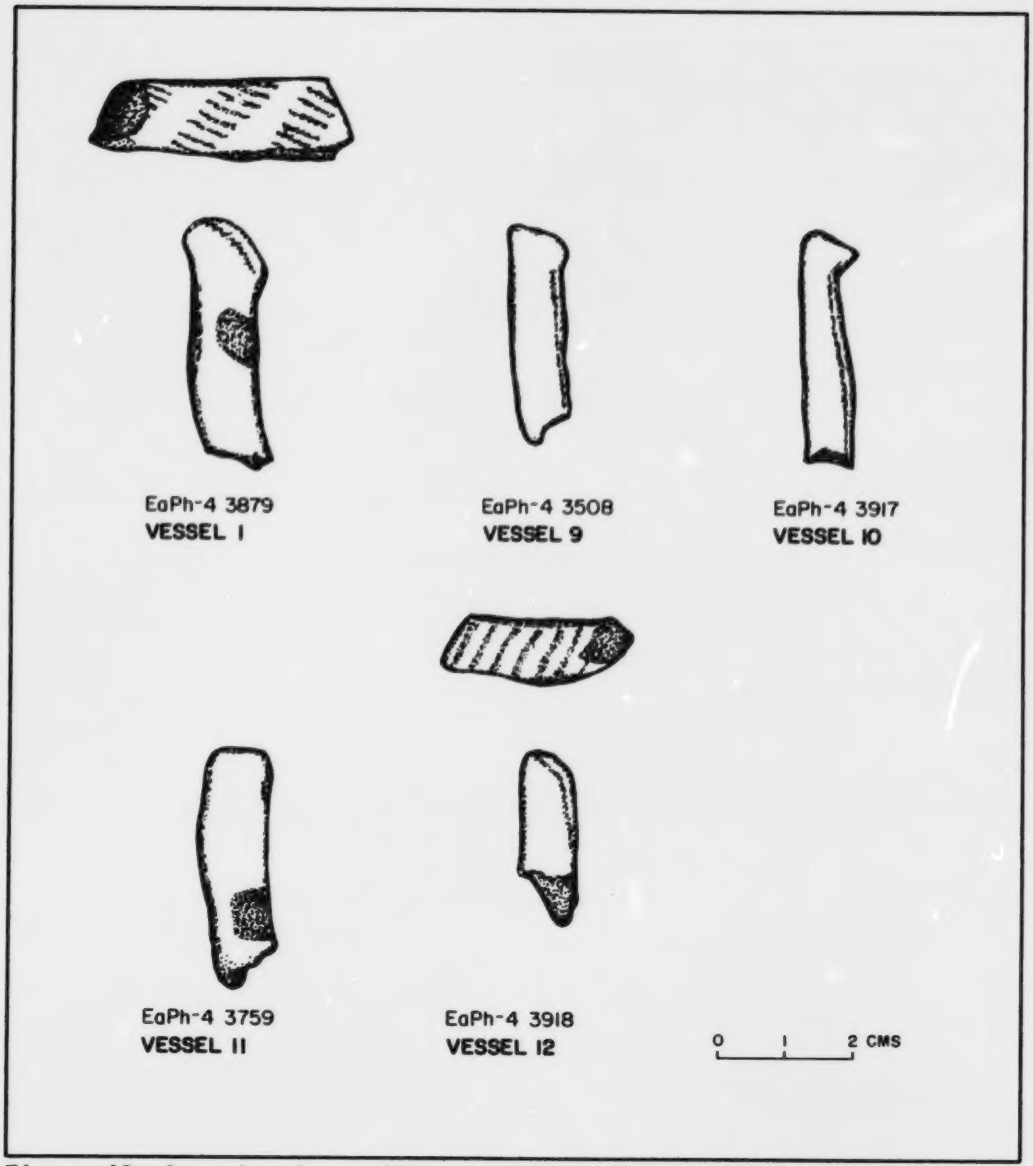
EaPh-4 3879
VESSEL 1
EaPh-4 3508
VESSEL 9
EaPh-4 3917
VESSEL 10
EaPh-4 3759
VESSEL 11
EaPh-4 3918
VESSEL 12
0 1 2 CMS

Figure 40. Ceramic rim profiles recovered from surface collections.

the rim sherds is directly comparable to the rim fragments recovered from excavations. The remaining four rim sherds have been attributed to new vessels or vessel types. The body sherds exhibit two different surface finishes, either plain smoothed or muted corrugations. These vessels all have a hardness of 3.5 or less on Mohs scale of hardness.

One rim sherd (Figure 41a) is directly comparable to Vessel 1 recovered from the excavations. The sherd exhibits a smoothed uniform surface which ranges from light to dark brown in colour. Decoration consists of diagonally placed series of linear impressions on the rim and deep diagonally placed punctate. The shoulder vessel shape and rim configuration, rim and shoulder thickness, hardness, and temper are identical to those observed in Vessel 1.

Vessel 9 is defined on the basis of one rim sherd (Figure 41b). It is similar in rim and rim to shoulder configuration, morphology of cord marked surface treatment, colour, paste and temper to that observed in Vessel 7 from the excavations. The principle differences between Vessel 7 and Vessel 9 lie in the presence of a rim lip on Vessel 9 and in body thickness. The rim of Vessel 9 is slightly wider than that of Vessel 7, ranging from 8.5 to 9 mm, and the thickness of the body wall, ranging from 9 to 9.5 mm, is also greater than that observed in Vessel 7.

Vessel 10 is defined on the basis of two rim sherds (Figure 41c), and resembles Vessels 7 and 9. The rim, 10 mm wide, has a smooth, flat top and slopes sharply to the exterior of the vessel. The rim merges imperceptibly with the wall below on the interior of the vessel, but terminates in a well defined lip on the exterior of the vessel. The surface of Vessel 10 was cord marked, similar to Vessels 7 and 9, but the raised corrugations in Vessel 10 are coarser. The paste is of medium texture and is laminated in appearance. Temper consists of granitic inclusions less than 2 mm in diameter. The potsherds are medium brown to grey-brown in colour.

Vessel 11 is defined on the basis of one rim sherd (Figure 41d). The smooth undecorated rim, 11 mm wide, is subrectangular with rounded interior and exterior edges and slopes gently toward the exterior of the vessel. The shoulder, a maximum of 10.5 mm thick, is generally s-shaped in morphology. The exterior of body of the vessel was smoothed.

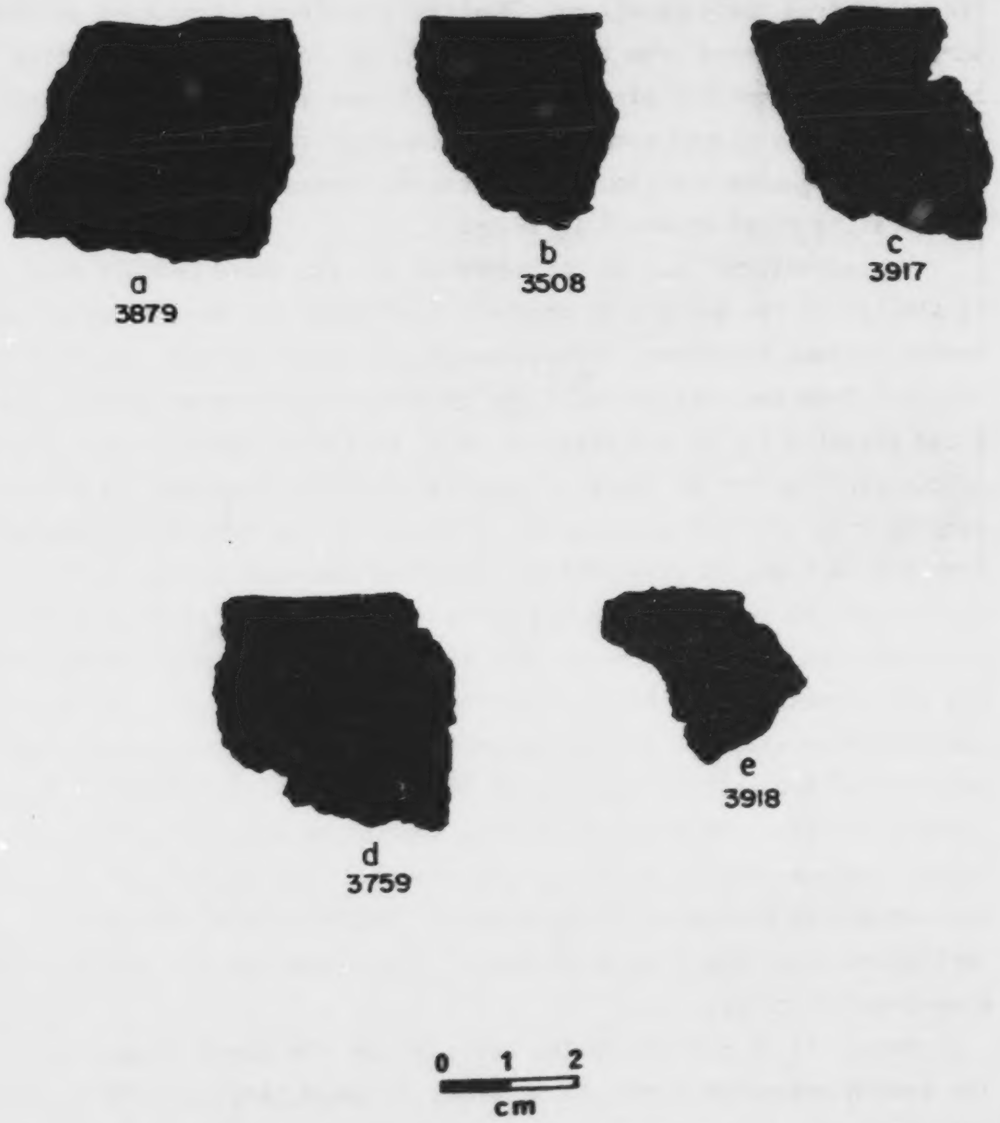
a
3879
b
3508
c
3917
d
3759
e
3918
0
1
2
cm

Figure 41. Ceramic vessels from surface collections.

Punctates were placed perpendicular to the shoulder of the vessel. Large pieces of crushed granite with diameters up to 4.5 mm are evident in the medium laminated paste. The colour of the exterior surface of the sherds is medium grey, whereas the interior ranges in colour from medium grey to dark carbonaceous grey-brown.

One rim sherd (Figure 41e) is used for the definition of Vessel 12. Because extensive exfoliation of the interior surface of the sherds has occurred, all rim and wall measurements are approximate only. Characteristic of this vessel is a subrectangular rim, approximately 8.5 mm wide, from which the shoulders curve gradually outward, suggesting that the vessel was globular in shape and lacking in any neck constriction. The wall of the vessel is approximately 9.5 mm wide. The top of the rim was decorated with a continuous series of diagonally placed impressions, which are carried over onto the adjacent body of the vessel. The morphology of the decoration is muted in appearance, suggesting that it was produced by a coarse cord or corded fabric. The texture of the paste is extremely hard and fine grained. The light temper consists of minute sand grains, less than 1 mm, and coarse granite (?) up to 3 mm in diameter. The exterior of the sherds is light brown to light grey-brown in colour.

FAUNAL MATERIALS

A total of 15,705 g of bone was collected from the surface. The bone is highly fragmented as a result of construction activities and subsequent exposure to the elements. With the exception of two rodent bones, all the identifiable bone material is bison (Bison bison). Appendicular elements dominate the bone assemblage and include the phalanges, tarsals, carpals, tibia, femur, ulna, radius, and humerus. Most of the fragmentary bone consists of articular ends of large long bones, whereas the complete specimens consist of smaller elements such as phalanges, carpals, and sesamoids. Axial elements are represented by fragments of the pelvic acetabulum, scapula, and three thoracic vertebrae. Only one small cranial fragment was collected. The presence of eight left astragali and seven left humerii indicates a minimum number of eight bison. Most of the elements are indicative of mature individuals. The condition of a fused epiphysis of a distal humerus/proximal ulna and an associated unfused proximal tibia fragment suggest immature individuals between one and one-half years to four years old (Silver 1963). A small amount of foetal material is also present. The non-bison bone has been identified as a small rodent, perhaps a mouse or ground squirrel.

SUMMARY AND CONCLUSIONS

Analysis of the stratigraphic provenience, the lithic artifact categories, the morphological classes, and the identified ceramic vessels indicate that the cultural materials recovered from the Little Bow site represent the remains of two distinct prehistoric occupations in which cultural continuity is evident (Figure 42). Both the Carmangay and the Vulcan components are interpreted as campsites, based on the presence of: lithic tools such as scrapers, as well as bone, and fire broken rock indicative of domestic activities; ceramics indicative of relatively stable and perhaps long term occupation in both components; and the observed hearth and charred faunal remains in the lower Vulcan component.

The artifact classes recovered from both components suggest that generally similar activities were conducted at the site during both occupations. These included core reduction and tool maintenance, hunting, hide preparation, general camp maintenance, and possibly wood working. The hammerstones, abraders, and types of debitage indicate that the nature of the stone reduction and artifact production did not significantly differ in the two components. The presence of relatively few primary and secondary flakes indicates that although reduction did occur, it was not an important activity at this site. The relatively greater frequency of retouch flakes indicates that tool finishing, resharpening or refurbishing was a more important activity conducted in the excavated site area. Finer distinctions in artifact content between the two components are difficult to make. The amount of site area excavated was relatively limited, and the differences observed in artifact content may either be related to differences in the prehistoric

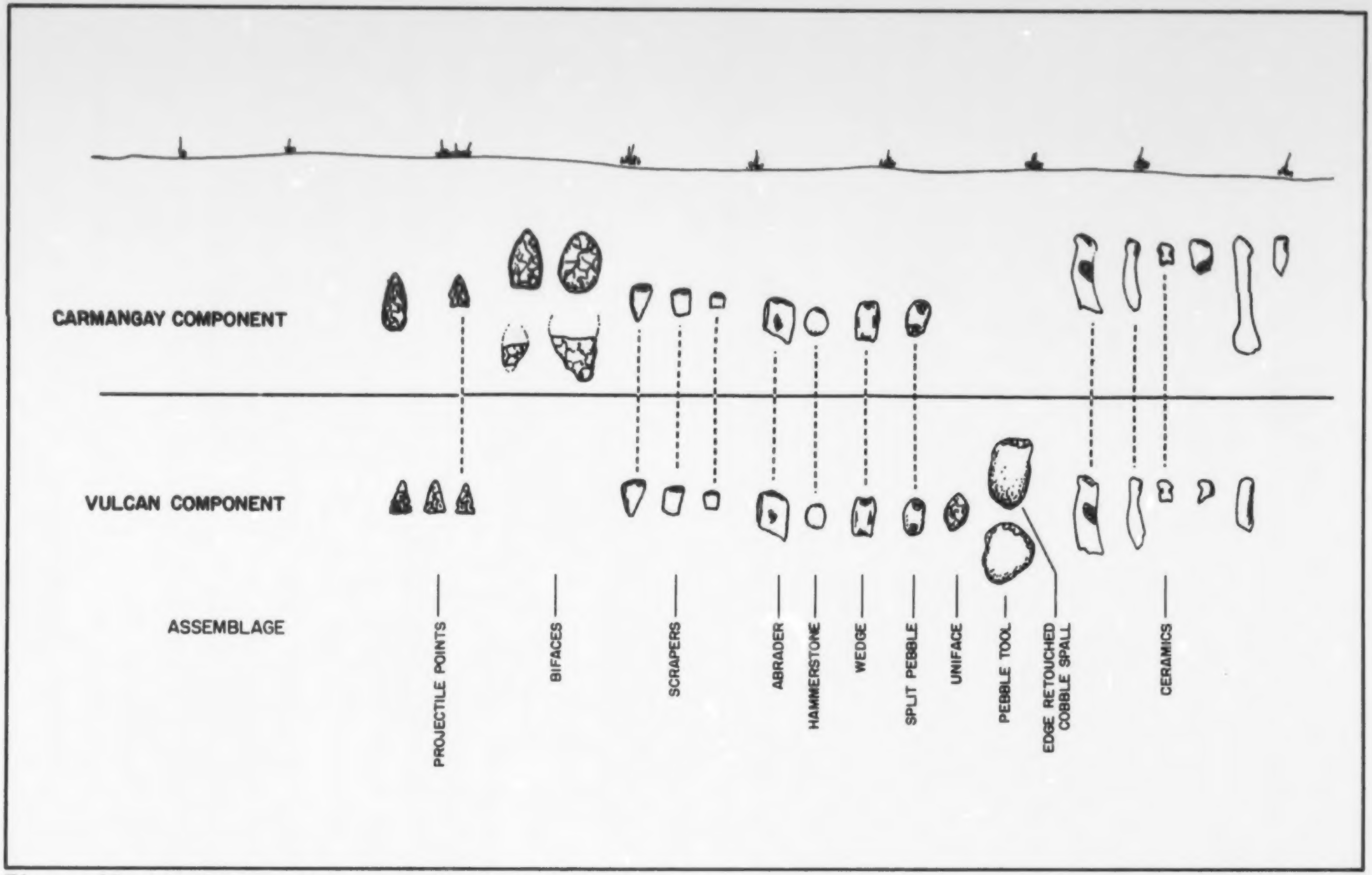
CARMANGAY COMPONENT
VULCAN COMPONENT
ASSEMBLAGE
PROJECTILE POINTS
BIFACES
SCRAPERS
ABRADER
HAMMERSTONE
WEDGE
SPLIT PEBBLE
UNIFACE
PEBBLE TOOL
EDGE RETOUCHED COBBLE SPALL
CERAMICS

Figure 42. Little Bow site, component characteristics.

activities "sampled" by the excavations, or they may be related to temporal/cultural differences in artifact or style preferences.

The predominant lithic type in both components is quartzite, which is locally available. The presence of obsidian, Montana Chert and Knife River Flint in both the Carmangay and Vulcan assemblages indicates communicative ties to the south/southeast.

Bison bone comprises almost all of the faunal material recovered from the Little Bow site. The presence and frequency distribution of the bison elements clearly indicate that bison was intensively exploited, both as a subsistence resource and for other required necessities such as hide, sinew, etc. Assuming that the faunal materials represent the remains of "fresh" kills, the presence of foetal remains in the surface collection suggests that the occupations occurred in spring or early summer.

Bone uprights are associated with the Vulcan component. The elements in these features are ribs and long bones. Although the function of the bone uprights cannot be conclusively demonstrated, the absence of ring rocks suggests that these bone items may have been used for holding down the hide covering or liners of tipi structures. Alternatively, the bone uprights may be related to hide working or to indeterminate ceremonial features.

Based on morphological similarities of the projectile points to similar specimens in dated contexts and the presence of ceramic vessels, both components are temporally related to the latter portion of the Late Prehistoric Period (A.D. 1000 - A.D. 1700). The radiometric dates obtained on bone for the Carmangay (620±230 years B.P. [AECV 153c]) and Vulcan (450±70 years B.P. [AECV 154c]) levels confirm the general temporal relationship of the components. Excavation of a metal projectile point fragment at 4 cm below surface indicates that the upper levels of this site are representative of two closely related Northern Plains cultural groups just prior to and/or at the point of influence by white contact.

The projectile points recovered during the surface collections are consistent with those of the Vulcan component. Stripping of the site by the bulldozers had removed the soil matrix containing the Carmangay materials. Using the currently accepted phase terminology, both the Carmangay and Vulcan components belong to the Old Women's Phase. However, because of the generally amorphous nature of the projectile points in this phase, direct cultural relationships between the Little Bow site and sites attributed to the Old Women's Phase cannot be ascertained.

Although the ceramics from the Little Bow site should allow for better determination of cultural relationships, the Little Bow ceramic complex is not readily comparable to other ceramic types in southern Alberta. Individual attributes of rim and body configuration, surface treatment, and decoration observed in the Little Bow ceramic complex have comparable counterparts in both the Saskatchewan Basin ceramic complex and the Cluny ceramic complex defined by Byrne (1973). However, the combinations of the isolated attributes in the Little Bow ceramic complex are not readily related, as a unit, to either of these defined ceramic complexes. Vessels from the Carmangay component share the following characteristics with the Saskatchewan Basin ware: unthickened rims, diagonally placed horizontal lines on the rim produced by impression with a cord wrapped stick, deeply impressed punctate placed immediately below the rim, and smoothed over cord or fabric impressions on the exterior surface of the body. Vessels 7 and 8 from the Vulcan component are similar to Saskatchewan Basin ware in terms of vertical rims and cord or fabric impressed surface treatments. Similarities between vessels from the Carmangay component and the Cluny complex ceramics include thickened rims and diagonally impressed cord wrapped stick marks on the rim and interior and exterior lips. Vessels from the Vulcan component do not share any characteristics with Cluny complex ceramics.

Further afield, Vessels 1 and 2 from the Little Bow site are very similar, not only in isolated decorative attributes (the cord wrapped stick impressions and the punctate), but also in the method of combining these two attributes, to those identified by Dawson (1977) as characteristic of the Late Prehistoric Blackduck Ceramic Tradition of northwestern Ontario, southeastern Manitoba, and northern Minnesota. The type and placement of these decorative motifs is similar to those observed on the Lockport ceramics from southeast Manitoba illustrated by MacNeish (1958:153).

Although regional and local differences in ceramic style and decoration can be expected, the combination of attributes observed on the ceramics from the Little Bow site appear to be sufficiently distinct to suggest a discrete ceramic tradition which may be diagnostic of a local resident group. Given the good ethnohistorical evidence for the presence of a variety of cultural groups on the Northern Plains and the generally amorphous nature of the Late Prehistoric projectile point styles, definition of regional ceramic complexes may provide the key to ordering regional and temporal cultural differences in the Late Prehistoric Period. Because ceramics are a much more plastic medium than stone for the expression and preservation of cultural preferences and standards, they are probably better indicators than projectile points of serial changes in styles and regional and cultural (ethnic) differences.

There is a tendency to identify the Old Women's Phase as the only "indigenous culture" evident during the terminal Prehistoric Period. Given the ethnohistoric data which indicates that substantial tribal diversity existed and population movements occurred, the implied Old Women's Phase - Blackfoot association warrants reconsideration. Without the aid of Gary Kilworth's "Widerhaus Repeater" for producing holo-images of prehistory, the extent and complexity of Late Prehistoric cultural diversity may never be conclusively demonstrated. Utilization of differences visible in cultural materials represents today's alternative to the "Widerhaus Repeater" process. The presence of ceramics, conducive to expressing artistic customs, may provide the best avenue for inferring cultural variability. Adequate sampling and acquisition of radiometric data from ceramic sites like the Little Bow site are critical to obtaining clues to the true diversity of late Northern Plains prehistory.

ACKNOWLEDGEMENTS

I would like to thank Dr. D. Burley, Dr. R. LeBlanc, and Mr. R. Vickers of the Archaeological Survey of Alberta, Alberta Culture, for their support of the project. The 1985 spring session introductory field methods class in archaeology, University of Calgary, Calgary, Alberta, conducted the surface collections. The Archaeological Survey of Alberta,

Alberta Culture, under the direction of Dr. R. LeBlanc, conducted partial excavation of the Little Bow site in 1984 and provided funds for the analysis of the materials from their excavations and from the surface collection.

PRELIMINARY REPORT OF THE RESULTS OF THE 1985 FIELD SEASON AT HEAD-SMASHED-IN

By
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Archaeological Survey of Alberta

INTRODUCTION

The 1985 field season marked the third year of archaeological investigations conducted by the Archaeological Survey of Alberta at the Head-Smashed-In Buffalo Jump (Figure 43). This World Heritage site is being developed for public interpretation by Alberta Culture; a Visitor Reception Centre is to be opened in the summer of 1987. Previous field seasons (Brink et al. 1984, 1985) have focused on the completion of mitigative excavations in advance of construction activities and on the initiation of research programmes designed to provide additional information about the site for the interpretation centre. Much of the 1985 field season was devoted to the continuation and expansion of the research focused endeavours, since most of the mitigative requirements have now been satisfied.

Research investigations conducted in 1985 included: the continued study of the processing site located below the main kill site; the testing of the spring head channel which bisects the kill site for winter saturated deposits; survey and test excavation of potential jump sites along the east flank of the Porcupine Hills; and continued off-site experimental studies of pit features, fuels, stone boiling and bone breakage for marrow and grease extraction. Ancillary studies involved field evaluations of the drive lane complex within the Head-Smashed-In gathering basin. Preliminary results from these research programmes are presented below. A final report of the 1985 field season is in preparation.

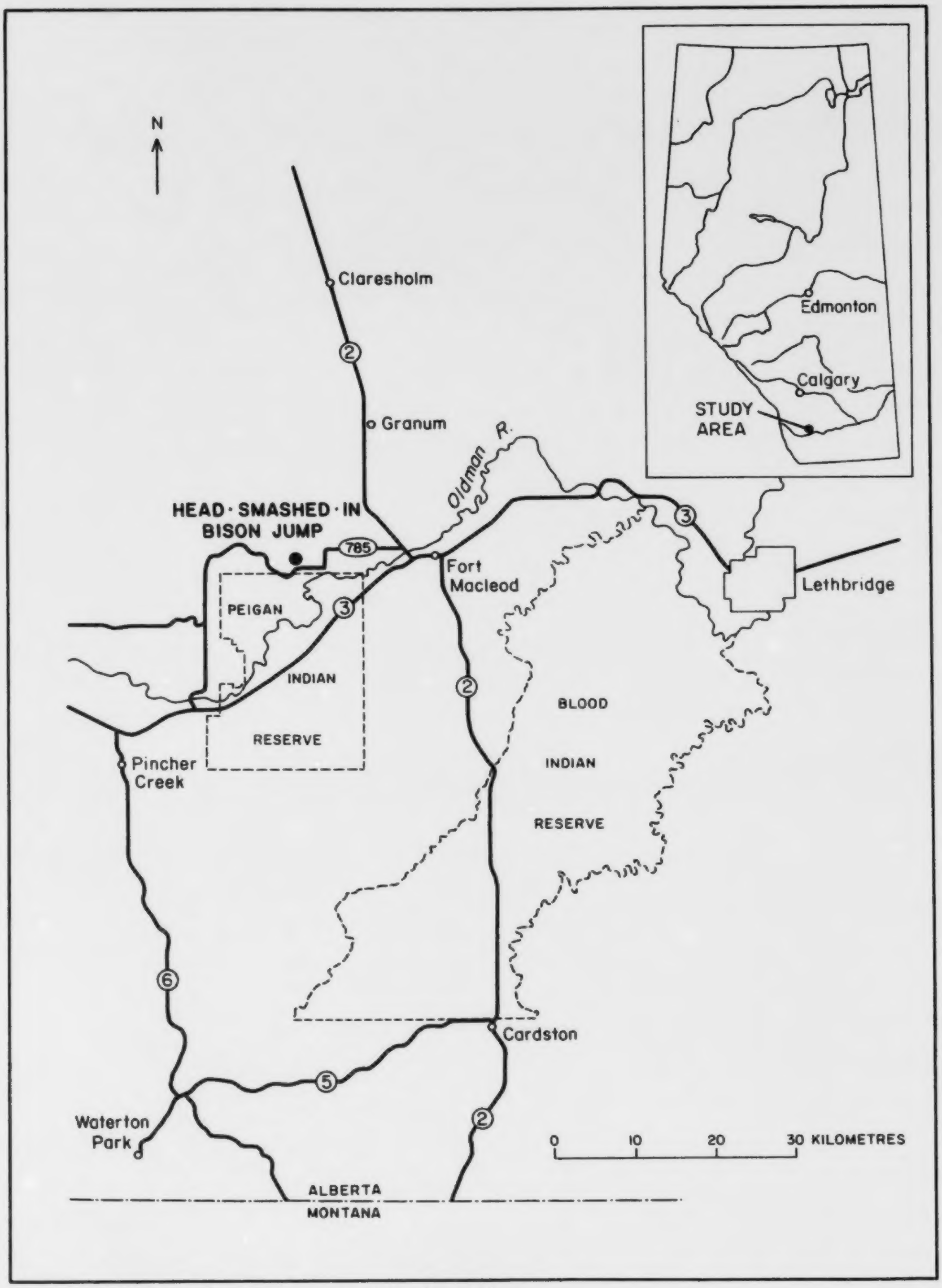
N
Claresholm
2
Granum
Oldman R.
HEAD·SMASHED·IN
BISON JUMP
785
Fort Macleod
3
Lethbridge
PEIGAN
INDIAN
RESERVE
BLOOD
INDIAN
RESERVE
Pincher Creek
6
Cardston
5
Waterton Park
0 10 20 30 KILOMETRES
ALBERTA
MONTANA
Edmonton
Calgary
STUDY AREA

Figure 43. Study area and site location.

PROCESSING SITE

The investigation of the processing site has been, and continues to be, a major research focus for the Head-Smashed-In project. Studies of this area to date have documented the complex record of bison processing represented in the extensive but shallow and compressed cultural deposits below the main kill site. In 1985, the installation of a well and water line service trench to the future site of the Visitor Reception Centre (Figure 44) revealed some evidence of relatively deeply buried cultural deposits. For most of its 200 m length, the 1 m wide trench occupied an essentially sterile drainage channel. Only the eastern 7 m of the trench revealed rich cultural deposits buried to a depth of some 60 cm below surface. The deposits, as revealed in the trench profile, consisted of discontinuous paleosols, a thick Ah horizon, discrete bone concentrations and one large pit feature. Previous excavations in the processing area during the 1983 and 1984 field seasons had failed to uncover cultural materials below a depth of about 25 cm. We had been informed by Reeves (personal communication 1983), however, that his excavations in the 1960s had indeed encountered artifacts buried to depths reaching 60-80 cm. Efforts by us in 1983 specifically to locate similar cultural deposits failed. Apparently, the eastern end of the water line trench had intersected the edge of the same small pocket of deeper soils which Reeves had encountered. Since compressed soils and lack of cultural or natural stratigraphy have continued to plague our research at the Head-Smashed-In processing area, the discovery of deeper deposits was viewed as an opportunity to search for vertically separated discrete occupations. This possibility motivated the excavation of four contiguous 2 x 2 m units and one 1 x 1 m unit positioned near the eastern end of the water line trench (Figure 45).

Excavation methodology followed that of previous years, utilizing the 2 x 2 m and 50 x 50 cm subquads excavated in arbitrary 10 cm levels as the minimum provenience units. All matrix was screened through 1/4 inch (6.3 mm) mesh, and floor plans were completed to record the distribution of identifiable bone, fire broken rock and features. Several well preserved features were recorded in the 16 square metre excavation unit and the well head trench. These features could not be detected until the

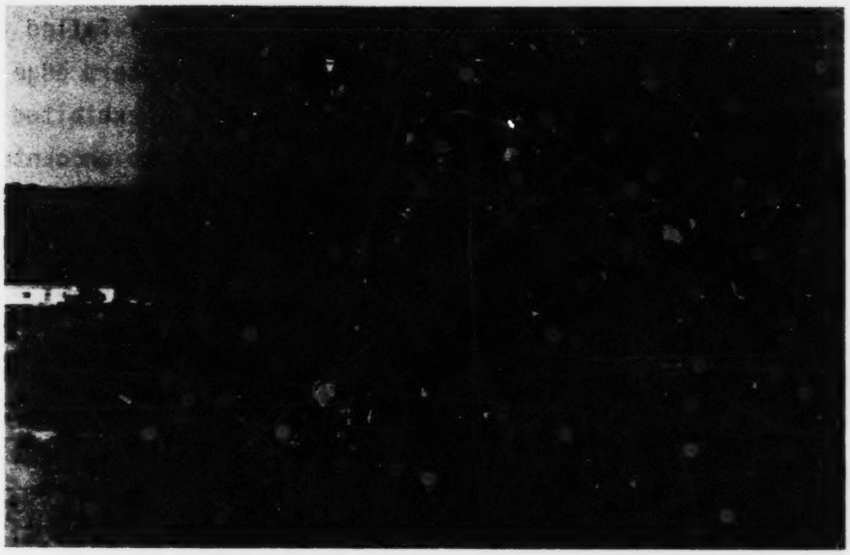

Figure 44. View of construction site.

Figure 45. Block excavation in the camp and processing site (note cliff edge jump-off and kill site in background).

upper 20 cm thick deposit of compacted bone, fire broken rock and loess had been removed. This mantle of bone and fire broken rock characterizes the majority of the processing site.

Unfortunately, most of the contiguous excavation unit failed to reveal cultural deposits below 30 cm. Only the very western edge of the unit, that closest to the end of the water line trench, exhibited the deeper cultural deposits (ca. 50 cm) that we had hoped to encounter. It appears that most of this unit was positioned outside the boundaries of what appears to be a very small sediment trap exposed in the well trench. Although no discrete strata were discernable in the units containing the more deeply buried cultural remains, the possible presence of depositional horizons will be evaluated using multiple C-14 submissions from the unit profile. Excavations planned for 1986 will continue to explore this small sedimentary basin by expanding the block unit towards the west.

The pit features recorded in the well trench and contiguous excavation units were remarkably well preserved and complex. Although the analysis of these pits is far from complete, it would appear that feature 85-5, which contained a basal layer of fire reddened sandstone slabs, was used as a roasting pit (Figure 46). The function of feature 85-4 has yet to be determined. Although the massive quantity of fire broken rock and the general configuration of the pit would argue most strongly for a boiling pit function (Figure 47), the bone elements recovered from the pit matrices are at odds with such an interpretation. Charcoal obtained from the dark organic sediment which lines the base of the pit yielded a C-14 estimate of 1250±90 years B.P.:A.D.700 (AECV 191).

Other features encountered in the block excavation included a complete bison skull (hitherto unrecorded in the processing site), multiple bone uprights, fire broken rock concentrations and hearth features. The analysis of these features and other data from the block excavation is currently underway, and will provide an interesting comparative sample to our extant feature assemblage (see Brink et al. 1984, 1985).

DK PJ 1
FEATURE

Figure 46. Sandstone slab-line pit feature in camp and processing site.

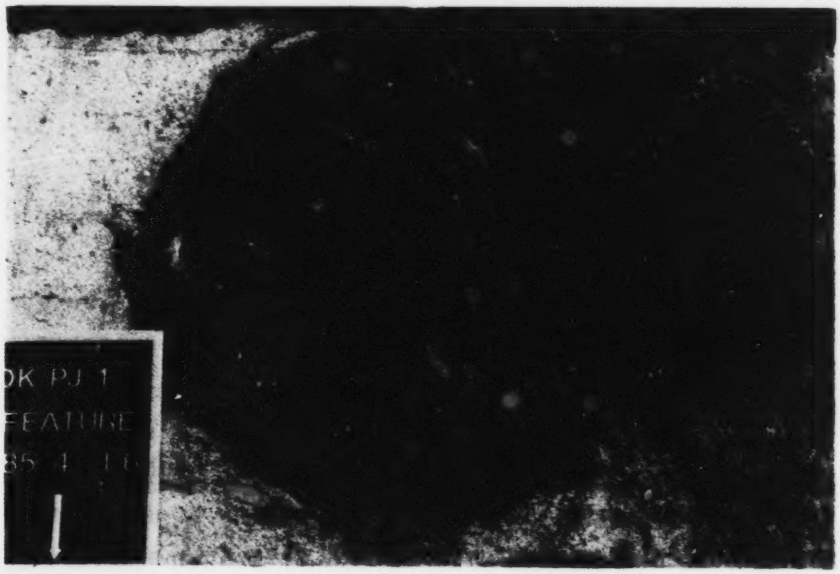
DK PJ 1
FEATURE
85 4 11

Figure 47. Possible boiling pit feature in camp and processing site.

SPRING HEAD CHANNEL

The kill site deposits are bisected by a channel (see Figure 45) containing a spring which formerly flowed from the cliff face to a slough impoundment on the prairie level. Although this spring has recently ceased to flow on the surface, it was hypothesized that an underground flow may have persisted and that saturated sediments may have preserved organic remains which are not encountered in other site deposits (i.e., leather, wood, basketry). These deposits were tested to determine the extent of the wet deposits and the feasibility of a more ambitious excavation program in future seasons.

Initial probing was conducted using a power auger; this was followed by excavation of units using arbitrary levels and screening the matrix through 1/4 inch mesh. The volume of cliff topple incorporated into these deposits made deep augering impossible, but this phase of the testing programme did reveal standing water 25 cm below surface midway between the kill deposits and the prairie level processing site (Figure 48). Two 1 x 1 m units were completed, the deepest of which extended

Figure 48. Location of spring channel test excavations below kill site (view is east, standing at edge of cliff jump-off).

1.5 m below surface before it became impossible to excavate further. Preservation within the saturated soils was excellent and bone elements proliferated the deposits, but only a few fragments of modern leather and a whittled wooden stake were recovered. Although the presence of saturated deposits and the evidence for organic preservation were encouraging, it was also obvious that the deposits were stratigraphically disturbed and that the water saturation levels have varied greatly. Discordant associations occurred in the form of bottle caps recovered below prehistoric projectile points, and oxidization lenses in the sediment profile represented periodic drying of the channel deposits (John Dormaar, personal communciation 1985). These factors, combined with the difficulties associated with dry screening a moist clay matrix, obviated further investigation of these deposits. Given the clearly disturbed stratigraphy in the channel bottom, and the saturated nature of the soils, any further work in this area will be designed solely to recover perishable artifacts which are not likely to be found anywhere else at the site. If such additional excavations are to take place, a sophisticated wet screening operation will be required.

OFF-SITE EXPERIMENTS

As in previous field seasons, a portion of the Head-Smashed-In research programme was devoted to the experimental evaluation of pit features, fuels and boiling stone technology. The objective of these studies is to provide analogs for the features and processing residues that are recovered archaeologically from the Head-Smashed-In processing site. In the past, attention has focused on the heating properties and resultant residues from different styles of hearths and pits, as well as on evaluating the properties of various types of fuel and boiling stone materials. In 1985, we turned more specifically to issues of bison processing, particularly the tasks of bone breakage for marrow removal and bone crushing for the purpose of extracting grease in hide-lined boiling pits. The objectives were to determine experimentally the labour and time required to undertake such activities and to compare the bone residue resulting from such activities with that recovered from the processing site.

The data derived from over 25 experimental trials have yet to be analysed, but some preliminary comments can be offered. Our experiments confirmed the opinion of others (cf. Binford 1978), that bone degreasing is a tedious activity requiring significant expenditures of time, materials and labour for what turns out to be a very meager return (i.e., bone grease). The timing of our experiment (i.e., mid-summer) may have unduly coloured our impression of the relative efficiency and utility of bone degreasing. We found, for example, that a great deal of grease was lost through the "sweating" of the bone prior to breakage, that the anvil stone, hammerstone and tool user became covered with grease and that further loss was incurred when gathering the dispersed bone fragments and carrying them to the boiling pit. The hide-lined pit was found to absorb some of the grease and the folds of the hide along the margins of the pit trapped more grease, leaving relatively little to be skimmed from the cooled pit. It may be the case that summer heat and bone grease rendering are simply incompatible; certainly the ethnohistoric and ethnographic accounts of this activity refer to only the cooler seasons of the year. It is also clear that some of the accounts are clearly indicative of the stress-related aspect of bone grease rendering; that is, it provided a last resort during winter food shortages. We have little reason to doubt that some bone processing would have been undertaken following a successful kill, for bone grease is an important constituent of pemmican and prized for its taste and nutritional value. However, given the other sources of fat available from the bison carcass, we question the need for bone grease extraction at Head-Smashed-In in light of the time and resource requirements associated with this activity.

REGIONAL SURVEY AND TESTING

A fourth major component of the 1985 season was the initiation of an examination of the Porcupine Hills in the vicinity of Head-Smashed-In. The motivation for this work stemmed largely from discoveries made by Reeves (1985a) and M. Rollans (personal communication 1985) regarding the Head-Smashed-In drive lane system which strongly suggested the presence of additional kills in the general area. Because this work eventually led to the brief testing of a new buffalo jump site (DkPj-27), a separate report has been prepared on this part of the 1985 Head-Smashed-In project (see Marshall and Brink this volume).

SUMMARY

The major projects conducted by the Archaeological Survey of Alberta sponsored crew at Head-Smashed-In Buffalo Jump during the 1985 field season consisted of: continued excavation of a portion of the extensive processing area situated at the base of the kill site; testing within the bottom of the spring channel which bisects the kill site in search of preserved organic artifacts in saturated sediments; continuing experiments with bison bone processing and feature utilization; and a brief regional survey of the Head-Smashed-In area searching for new kill sites, and the testing of one such site. Anticipated major studies for the 1986 field season include: continued survey and testing for new kills; more detailed excavations at DkPj-27; further excavation in the processing area in the vicinity of greater sedimentation to the west of the 1985 block excavation; and possibly, an excavation involving wet screening in the bottom of the spring channel.

A PRELIMINARY TEST OF THE CALDERWOOD BUFFALO JUMP
(DkPj-27)

By
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Trent University
and
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Archaeological Survey of Alberta

INTRODUCTION

It has been suspected for several decades that Head-Smashed-In Buffalo Jump (DkPj-1) might not be an isolated kill site at the extreme southeastern end of the Porcupine Hills. Numerous other jumps are known to exist within a 50 km radius of Head-Smashed-In, since this rolling and dissected country at the eastern base of the Rocky Mountains is prime buffalo jump territory. However, the only notation of additional jumps directly associated with the Head-Smashed-In kill site comes from a site form filled out in 1965 by B. Reeves for site DkPj-3. This site is described as a large campsite/butchering area covering an extensive area of prairie to the north of Head-Smashed-In. Reeves notes that the site DkPj-3 may be related or associated with a presumed buffalo jump located at the base of a steep cliff at the west end of the area identified as DkPj-3.

The presumed kill site associated with DkPj-3 was never explored or tested by Reeves or his crews. Nor, as far as we are aware, has it ever been disturbed by artifact collectors. To distinguish the initially recorded large campsite (DkPj-3) from the associated jump site, the latter has been renumbered DkPj-27 and has been named the Calderwood Buffalo Jump, after the landowners, Jim and Denise Calderwood of Granum, Alberta. A brief investigation of this jump site was one component of the 1985 Head-Smashed-In archaeological project. A review of our preliminary regional survey and the testing of the Calderwood Jump are the subjects of this paper.

THE KILLING FIELDS

The initial view presented by Reeves (1978, 1983) of the Head-Smashed-In site complex included several features: a massive topographic gathering basin or collecting area measuring some 40 square kilometres where bison herds were rounded up; an intricate and extensive system of drive lane cairns which serviced this basin by funneling the herds towards the kill; and finally the kill site itself, located at the base of a 10 m sandstone cliff and characterized by an impressive 11 m deep bone bed of stratified deposits spanning the past 5700 years. The single kill site at Head-Smashed-In, measuring some 200 m in length, was seen as the intended terminus of each prehistoric drive event, and all other aspects of the operation of the site were presumed to reflect attempts to guide the animals to this location. With the decision in 1981 to construct a major on-site interpretive facility at Head-Smashed-In came a renewal of archaeological activity designed to increase our understanding of the site. Three seasons of fieldwork have now been completed, and it would appear that our view of a single kill hypothesis is in need of revision.

An important step towards this revision was taken by Reeves himself. While under contract to the Archaeological Survey of Alberta, he completed a comprehensive mapping project of nearly all of the drive lane cairn system at Head-Smashed-In (Reeves 1985a). The results of this project showed the cairn layout at Head-Smashed-In to be far more complex than originally suspected. Most importantly, the configuration, alignment, topographic position and proximity to cliffs or steep slopes of some lanes strongly suggest that portions of the cairns system were designed to lead animals to kill sites other than that of Head-Smashed-In. An ongoing M.A. thesis study by M. Rollans aimed at more detailed investigations of cairn function has lent further support to the prospect of multiple kill sites in the vicinity. Primarily, this support consists of the layout of drive lanes in such a fashion as to indicate that other types of traps were being employed. Throughout the Head-Smashed-In basin, these traps could have included additional rock cliffs, steep slopes, the valleys and side walls of small creeks and coulees, dead end valleys, and channel knickpoints. The physical remains of the drive lane system, which have only been disturbed in the cultivated bottom of the Olsen Creek channel, provides some direct clues as to profitable areas to investigate for additional kill locations.

Given the indications from Reeves and Rollans that, in fact, a multitude of kills may be present in the area, we began a brief programme aimed at investigating this possibility. As both Reeves' and Rollan's work took place in the summer of 1985, we had obviously not identified this new project on our 1985 research proposal. Consequently, only a brief time and personnel commitment could be allocated to the search for new kill sites. Continuation of this work will, however, become a major focus of the 1986 field programme.

Using primarily information from the drive lane studies, a methodology was devised which provided for rapid examination of areas considered to have a high potential for additional kills. Such areas were those where drive lanes were coincident with topographic features which could have served as kills. Initially, small shovel tests were conducted at potential sites, but this was soon abandoned in order to allow sufficient time to at least visit and visually inspect the primary kill candidates.

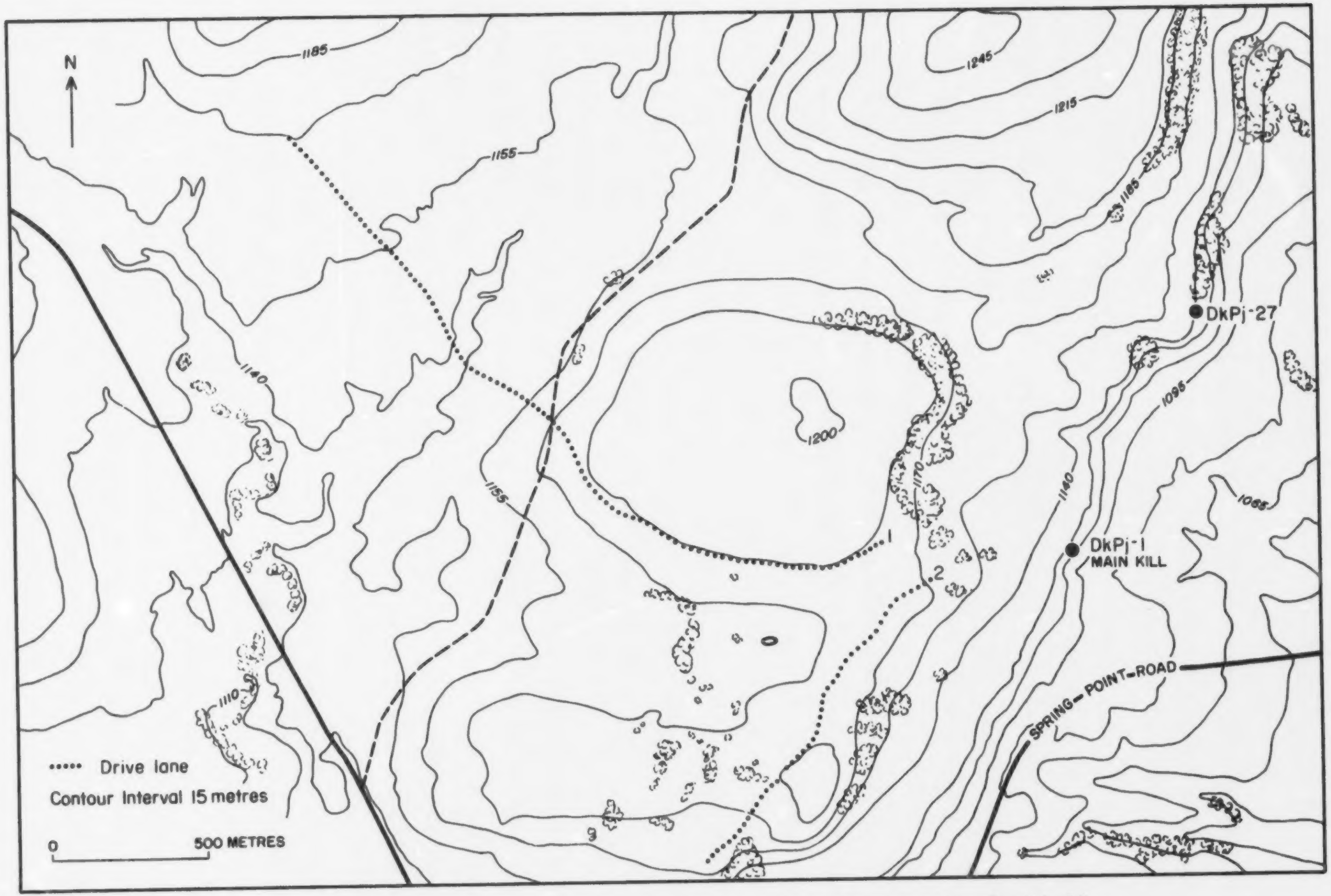
This survey work was completed by the senior author during the last few weeks of the 1985 season. Despite visiting several very promising locations which seemed to exhibit all the requirements of a successful kill, only one definite kill, DkPj-27, was confirmed. Obviously, the absence of sub-surface testing negates the formulation of definitive conclusions as to the site status of many of these locations. Buried kills lacking any surface exposures could have been present at a number of localities, and our 1986 research strategy will be specifically geared for deep testing. The single definite kill was identified from a scattering of bones exposed in the shallow cattle trails which cross the length of the site. It was these exposures which led to the decision to conduct brief test excavations at DkPj-27. The remainder of this report is devoted to describing the tests conducted and the results obtained from our brief examination of the Calderwood Buffalo Jump.

SITE LOCATION AND SETTING

DkPj-27 is located about 1 km northeast of Head-Smashed-In on an escarpment of the Porcupine Hills (Figures 49, 50). The Porcupine Hills Formation, which forms the cliff at the jump site, consists mainly of gently dipping beds of sandstone and shale. The east-facing cliff is formed by a vertical face of sandstone which reaches a maximum height of six metres. This tapers off quickly to both the north and south; the actual jump-off area is about 60 m in length. Animals were led to the jump-off from the west and/or southwest and northwest, having been gathered from the hills and valleys of the Porcupine Hills gathering basin (see Reeves 1978). Most likely, a gentle swale or pass between two low hills to the west of the jump was the primary channel for bringing animals to the kill (Figure 51).

The area above and to the west of the cliff is covered with relatively sparse fescue grass and occasional sage brush and creeping juniper in local hollows. A number of blowouts and bedrock exposures are also present. The land to the west behind the jump gradually rises over a distance of about 400 m, then begins its decline to the Olsen Creek channel (Figure 51). At this prefatory stage, the possibility of drive lane systems at DkPj-27 has not been thoroughly investigated. A brief examination of the lands leading to the jump-off did not reveal any drive lane cairns. However, several hundred metres to the west of the cliff a complex network of possible cairns has been identified by Reeves (1985a) and Rollans (personal communication 1985), suggesting that some cairn system did service this jump. Hopefully, the ongoing M.A. thesis work by M. Rollans will help clarify the situation regarding cairn systems leading to kill sites other than Head-Smashed-In.

Directly below the jump-off are accumulations of sandstone bedrock, loess, and organic materials which form slump and topple material against the face of the cliff (Figure 52). This slump material slants eastward at an angle of about 35^{0} over a vertical distance of just over 50 m before levelling off and then rising back up some 20 m along a bedrock ridge (see Figures 50, 52). That is, the topography below the jump-off forms a notch, or U-shaped trough, because the slump material below the cliff terminates at the base of the notch and the land then rises to the



N
1185
1155
1140
1110
1155
1200
1170
1245
1215
1185
1140
1095
1065
DkPj-27
DkPj-1
MAIN KILL
SPRING-POINT-ROAD
1
2
•••••• Drive lane
Contour Interval 15 metres
0
500 METRES

Figure 49. Location of the Calderwood Jump (DkPj-27) and Head-Smashed-In (DkPj-1).

Figure 50. View to north of DkPj-27. Kill site is situated in the base of the notch (arrow).

Figure 51. View to west of DkPj-27 showing the Olsen Creek gathering basin. Slight channel in centre of photograph may be the route of the drive.

Figure 52. Cliff face (upper left) and slump and topple material which drape the slope of the cliff.

east, controlled by tilted beds of sandstone. This notch feature of the jump produces a natural entrapment which probably aided in containing wounded animals and, hence, may have made this particular site more attractive than other cliffs in the region. Large pieces of sandstone can be seen on the surface where they have accumulated in the base of the notch (Figure 52). The loose sandstone topple, as well as outcropping bedrock, is thickest at the south end of the notch and thin towards the north. Denser vegetation covers the slump deposits, consisting of mixed prairie grasses interspersed with snowberries, chokecherries, saskatoon and wild rose. Grass cover thins out up slope which is probably a reflection of sporadic outcropping of bedrock.

Continuing to the east of the bedrock rise forming the east wall of the notch, the land slopes gently to the east then flattens out to a very level plain extending towards the town of Fort Macleod (see Figure 50). Vegetation on the prairie is predominantly shallow fescue grass and other mixed grasses. Several small coulees exist close to the kill site, originating from spring heads or run-off from the cliff faces. Several kilometres to the south of the jump site is the Oldman River which forms the major river drainage in the area.

METHODOLOGY

Preliminary excavations at DkPj-27 were carried out during the last week of the 1985 season. During this time, two 1 x 1 m units were excavated, one to a final depth of 1.9 m below surface; the second terminated at a depth of 80 cm due to the uncovering of a large piece of fallen bedrock. The notch or depression immediately below the jump-off was selected as a test area because of its potential to hold the greatest accumulation of both natural and cultural deposits. Unit placement was strictly judgemental and was decided on the basis of the presence of level ground and the absence of toppled bedrock. Unit 1 was placed in the northern portion of the jump site; Unit 2 was placed 20 m to the south in the approximate centre of the site.

The matrix from each unit was removed with a combination of shovel and trowel, depending on the density of bone encountered. All identifiable portions of bone were recovered and catalogued. For the purposes of this preliminary test, thousands of small, unidentifiable scraps of bison bone were discarded from the screens, though occasional samples were taken for possible radiocarbon dating. The sediments were passed through a quarter inch (6.3 mm) screen to determine the presence of artifactual remains. Bone, lithics, and fire broken rock were bagged separately for each excavation level.

RESULTS

STRATIGRAPHY AND FAUNA

Unit 1 was excavated to a final depth of 1.9 m using levels dependent on perceived cultural stratigraphy until a depth of 1 m, and at 20 cm levels beyond this depth. It must be stressed that, as these were the first sub-surface probes at DkPj-27, we had no guides as to what type of natural or cultural stratigraphy to expect. Hence the levels excavated reflected subjective assessments of cultural layers encountered in the course of excavation. Once the units were completed, examination of the unit profiles helped to delineate stratigraphically distinct bone levels (Figure 53).

The first bone lens was encountered in Level 2 (10-30 cm below surface [B.S.]), specifically between 15-20 cm. Bone preservation was generally good, and there were a number of large bone elements. The soil was a dark brown sandy silt. By Level 3 (30-45 cm B.S.), massive amounts of burned and calcined bone were evident. The entire bone lens was

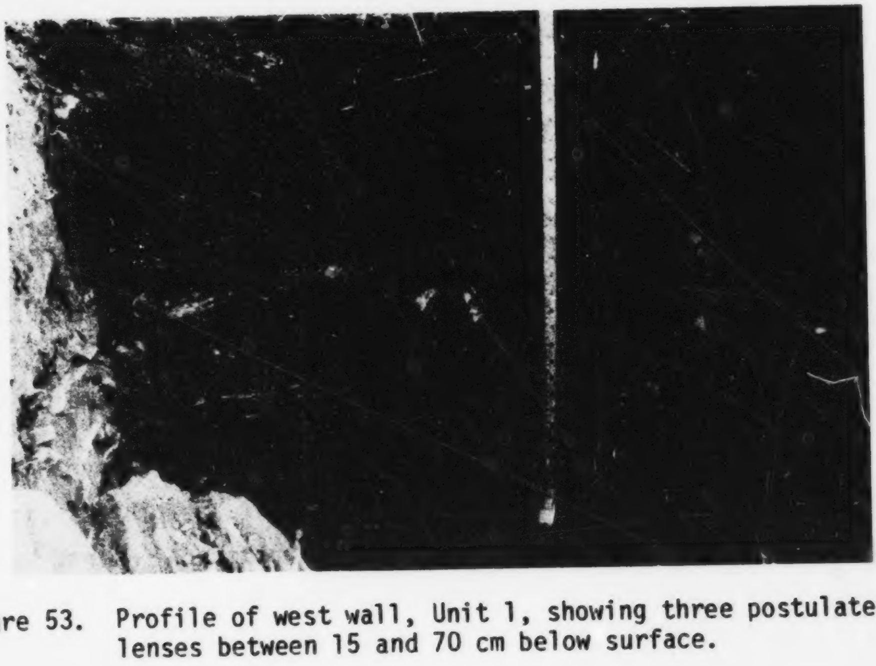


Figure 53. Profile of west wall, Unit 1, showing three postulated bone lenses between 15 and 70 cm below surface.

heavily charred and highly fragmented. Large, complete, identifiable elements were rare in Level 3. It is not yet known at this point whether or not the severe burning of this second bone lens was the result of natural phenomena (e.g., prairie fires), or was intentionally induced by the prehistoric hunters as a means of cleaning the kill site for subsequent use (see Frison 1970:6). The second bone lens had completely disappeared by a depth of 45 cm below surface.

Level 4 (45-60 cm B.S.) was a relatively sterile light brown sandy soil, but this changed at the beginning of Level 5 (60-120 cm B.S.) where a hard clay pan was encountered. Coincident with this lens of clay sediment was the third bone layer which extended from a depth of 60 to 70 cm below surface. Much of the bone in this layer was also heavily fragmented and charred, though not to the extent of the second bone lens. Below 70 cm, there was very little indication of definite bone lenses, although occasional fragments continued to be encountered to the final depth of 1.9 m. There was some evidence of burrowing disturbance and occasional fragments of sandstone.

There was no definite indication in the remaining levels of any kill deposits, and the matrix remained relatively hard and compact. Larger slabs of sandstone began to appear in the walls of the pit, and by Level 8 (160-180 cm B.S.), a large bedrock piece occupied a third of the southeast corner of the unit. Excavation in Unit 1 was discontinued at a depth of 1.9 metres. Notes were taken of the west wall regarding the nature of the sediments, depth and thickness of the bone lenses, soil horizons, and appropriate Munsell colour codes. Radiocarbon samples were also taken from the three distinct bone lenses.

Unit 2 was excavated to a depth of 80 cm below surface using arbitrary 20 cm levels, except for Level 1 which was 10 cm thick. Cultural stratigraphy appeared to be quite similar to that encountered in Unit 1. The first bone lens was encountered in Level 1 (0-10 cm B.S.), almost directly under the sod layer (Figure 54). This was a particularly thin lens, comprised largely of fragmented elements. A second bone lens appeared by the end of Level 2 (10-30 cm B.S.) and the beginning of Level 3 (30-50 cm B.S.). This was an especially prominent layer of bone which was clearly visible in all walls of the unit. Bone in this lens was in generally good condition, with both large fragments and whole elements

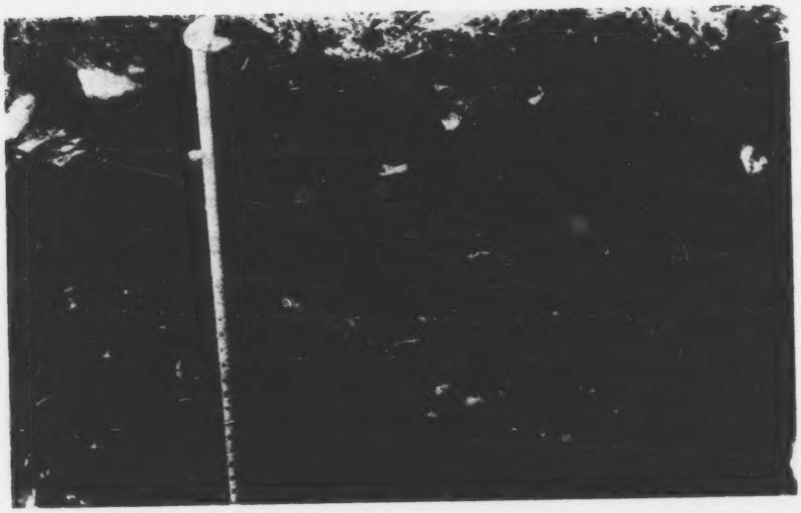


Figure 54. Profile of east wall of Unit 2 showing bone lenses at depths of ca. 10 cm, 30 cm and calcined bone at 50 cm.

evident. The lens was quite distinct and was separated from above and below by relatively sterile soil. Soil colour had changed from a dark to light brown sandy silt. By Level 3, a large bedrock slab appeared in the northwest corner of the unit.

By Level 4 (50-70 cm B.S.), the toppled bedrock occupied approximately one-third of the floor of Unit 2. A rich lens of heavily charred and calcined bone began near the top of the level and extended to 60 cm below surface. The bone was heavily fragmented with few complete elements. The soil in this level was a much darker brown colour, possibly due to burning of the bone lens.

At a depth of approximately 70 cm, another lens of calcined bone was encountered. However, it could not be determined whether this lens was truly a new stratigraphic layer or simply a depression of the bone bed above caused by the large sandstone bedrock piece. Adding to the confusion were pockets of light tan soil which may be krotevenas or other post-depositional disturbance features. By Level 5 (70-90 cm B.S.), the incidence of bone dropped off dramatically. What bone was found was unburned and fairly small in size. We believe these occasional scraps, like those below 70 cm in Unit 1, to be natural in origin (or displaced from upper cultural layers) and not part of lower kill events. Beyond a depth of approximately 70 cm, excavation could only continue in the southeast half of the unit due to the continued encroachment of the large bedrock slab. Excavation was concluded at a depth of 80 cm.

Although these two 1 x 1 m units afford a very narrow view of the sub-surface deposits at DkPj-27, it would appear that a consistent natural and cultural stratigraphy is continuous in the upper 80 cm of sediment, at least across the 20 m distance between the two units. Preliminary inspection of unit profiles indicates the existence of three bone lenses. Specifically, these stratigraphically separate lenses were encountered at depths of approximatley 10, 30 and 60 cm below surface. Bone samples for each of the three identified bone lenses were collected from the profiled west wall of Unit 1 and were submitted for radiocarbon dating. Collection directly from the unit wall, as opposed to selecting from the arbitrary level bags, allowed confident assignment of radiocarbon samples to the three tentatively identified bone lenses. It was hoped that the resulting dates would help confirm or refute the postulation that these lenses represent three temporally distinct uses of the jump. The following results were obtained:

DkPj-27-1: Bison bone fragments weighing 395 g collected from a depth of 10-18 cm below surface in Unit 1 returned a date of 210±160 years B.P. (GX11607).

DkPj-27-2: Bison bone fragments weighing 418 g collected from a depth of 30-40 cm below surface in Unit 1 returned a date of 1830±200 years B.P. (GX11608).

DkPj-27-3: Bison bone fragments weighing 335 g collected from a depth of 55-65 cm below surface in Unit 1 returned a date of 2820±230 years B.P. (GX11609).

The radiocarbon dates are sufficiently distinct to support the contention that the three bone lenses are indeed temporally separate kill events. However, the generally low rate of soil deposition at the base of the kill (approximately 60 cm in the last 2800 years) renders it impossible at this time to conclude that each distinct bone lens is the result of only one kill event. Several kills in rapid succession could appear as a single bone layer. Further excavation will hopefully clarify this question.

The radiocarbon dates indicate that the kill site deposits date to the Middle Prehistoric and Late Prehistoric, and possibly the Historic, Periods. The youngest date (210±160 years B.P.) is essentially modern and must be discarded. This lens will be re-dated in hopes of obtaining a more reliable date. Based on the dates returned, and on the size of the bone recovered, we assume all bison material to be the remains of the modern form, *Bison bison bison*.

Bone excavated at DkPj-27 was not all uniform in appearance or condition. Both charred and uncharred elements were recovered and, as previously mentioned, the cause for the severe burning is not yet known. In both units, the middle bone lens, at a depth of 30-40 cm, showed evidence of extensive burning. In both instances, the bone was highly fragmented and difficult to identify. Preservation of uncharred bone ranged from very good to poor. It is likely that taphonomic agents such as physical weathering and rodent activity were instrumental in producing these differences.

In total, 481 identifiable fragments were recovered, 273 from Unit 1 and 208 from Unit 2. All bones were identified as *Bison*; no other taxa were recovered. Preliminary examination of the assemblage suggests a general lack of distinctiveness. That is, it is composed of a few representative pieces of almost every element, these in turn being more or less evenly distributed between the units and levels. It must be remembered that this is a very preliminary assessment of the faunal assemblage based on a relatively small sample of bones from two small test units. Continued excavation may dramatically alter this initial perception.

LITHICS

A total of 58 flaked stone artifacts were recovered from the two excavation units, 53 from Unit 1 and 5 from Unit 2. Although microcrystalline silicates and silicified materials are evident, quartzite dominates the assemblage both numerically (n=40, 69%) and by weight. It is also evident that the majority of raw material types at

DkPj-27 are derived from relatively local sources. Two definite exotics include obsidian, presumed to be from the Yellowstone quarries, and Knife River Flint. A listing of lithic artifacts is given in Table 7.

A rudimentary classification of the lithic assemblage resulted in 50 items classed as flakes or shatter, one item as a quartzite spall and eight items as tools. Tentative tool categories identified include three points or point fragments from excavated context and a surface collected point; a large biface and a small biface fragment; and two side scrapers. Three corner notched projectile points and one triangular point tip were found. Specimen DkPj-27-1 is a surface collected point found approximately 15 m back from the cliff edge. Points DkPj-27-4 and 5 were taken from Unit 1, Level 3 (30-45 cm B.S.) in direct association with the second bone lens dated at 1830±200 years B.P. The other point found in situ, DkPj-27-57, is a tip and midsection found in Unit 2, Level 5 (70-90 cm B.S.) and was directly associated with the third (deepest) bone lens in the unit. By extrapolation with the third bone lens from Unit 1, which was dated at 2820±230 years B.P., we suggest that this artifact is of similar age. Stylistically, the specimens are somewhat problematic. The two speciments from the middle bone lens of Unit 1 bear definite similarities to the Besant type, yet also possess certain features reminiscent of Pelican Lake and Samantha. The date returned from the bone associated with these points is consistent with other Besant dates in Alberta (Reeves 1983:93-4). The third excavated point, from Unit 2, is too incomplete to suggest typological classification. Descriptions of the surface collected and excavated points follow.

DkPj-27-1

This point is a mottled brown chert with a light white patina (Figure 55a). The tip has been snapped off transversely. Blade edges are straight and sinuous and converge evenly from the shoulders to the distal fracture. Flaking on the blade is parallel sided and transversely oriented extending completely across both faces. Cross section is biplanar. The base is straight with very light grinding on the edge. The stem edge exhibits a polish probably from haft wear. Post-depositional damage is indicated by several nicks on the edge and a

Table 7. Distribution of lithic artifacts, DkPj-27.

			FLAKES								PROJECTILE POINTS		BIFACES		SIDE SCRAPERS		TOTAL LITHIC ARTIFACTS
UNIT	LEVEL	DEPTH (cm)	Quartzite	Chert	Obsidian	KRF	Quartz	Chalcedony	Siltstone	Total	Chert	Chalcedony	Quartzite	Silicified Mudstone	Quartzite	Silicified Mudstone	
1	2	10-30	1			1				2							2
	3	30-45	3	1		1			1	6	2						8
	4	45-60	13	1	3					17			1		1		19
	5	60-120	4			1				5						1	6
	6	120-140	4		1					5				1			6
	7	140-160	6				1	1		8							8
	8	160-180	3				1			4							4
	TOTAL		34	2	4	3	2	1	1	47	2		1	1	1	1	53
2	2	10-30	2							2							2
	3	30-50	2							2							2
	5	70-90										1					1
	TOTAL		4							4							5
SURFACE											1						1
TOTAL ARTIFACTS																	59

greasy lustre on the flake scars which may be indicative of thermal pretreatment. It is 32.2 mm long, 24.6 mm wide, 5.9 mm thick and weighs 5.1 g.

DkPj-27-4

This point is made of a grey-blue chert with light white patina (Figure 55b). The tip is very sharp and blade edges are evenly, mildly convex in plan, sharp and even in section. No particular flaking pattern is evident although scars are well executed and symmetrical. The longitudinal and cross sections are thin biconvex. The base is mostly straight but curves a little at either extreme. There is light grinding at the base edge and haft wear occurs as light smoothing on the inside of the notches. It is 35.5 mm long, 22.0 mm wide, 5.1 mm thick and weighs 3.8 g.

DkPj-27-5

This point is a red chert with a well developed mottled pink patina (Figure 55c). This specimen has been assembled from seven potlid

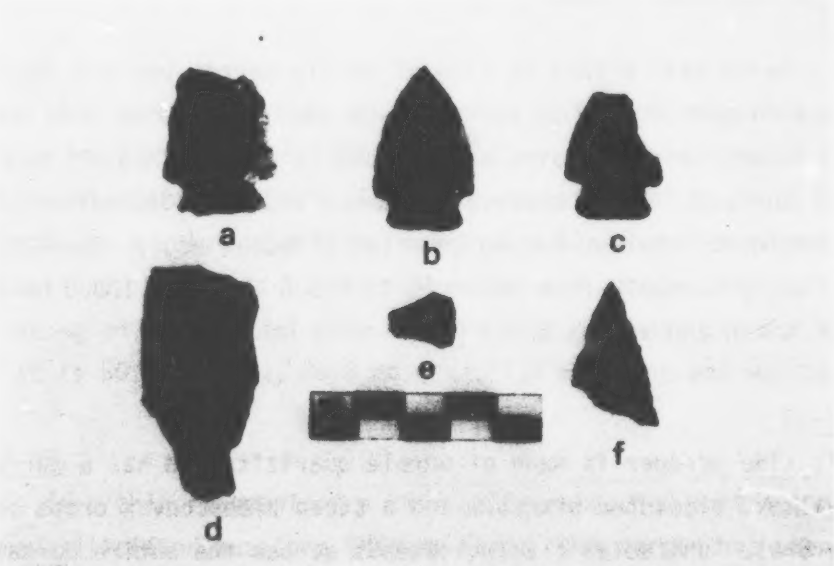


Figure 55. Projectile points and other formed tools from Calderwood Jump.

fragments. The tip is absent and the one intact blade edge is evenly convex. While flaking is well executed, there is no particular pattern. The longitudinal and cross sections are thin biconvex. The base is straight but curves convexly at the lateral margins. It is also slightly ground but no rounding or polish is evident. It is 27.3 mm long, 21.2 mm wide, 4.4 mm thick and weights 2.0 g.

DkPj-27-57

This thermally damaged triangular blade fragment (Figure 55f) was truncated from the proximal portion by an oblique thermal fracture and bifacial potlidding; the remainder is extensively crazed. The raw material may be Knife River Flint. The artifact has parallel side flake scars forming a medial arris on either face. The blade edges are quite straight and even. Distribution of polish on the rounded tip blade edges and facial high points suggest use as a knife to pierce and cut soft tissue. It is 31.0 mm long, 18.0 mm wide, 3.9 mm thick and weighs 1.4 g.

Four other formed lithic artifacts were recovered during testing which merit description. Included are two side scrapers, a large biface and a biface fragment.

DkPj-27-12

This large oval biface is made of fairly coarse textured beige quartzite (Figure 56a). It is well made and symmetrical with broad shallow flake scars extending across both faces removing all but a small cortical surface. It is biconvex in cross and longitudinal sections and has a continuous shallow double bevelled bifacial edge. One lateral edge is rounded, presumably from use. It is 155.3 mm long, 108.0 mm wide, 228.3 mm thick and weighs 532.3 g.

DkPj-27-13

This side scraper is made of purple quartzite and has a narrow, ovate, almost bipointed planform and a steep planoconvex cross section (Figure 56b). Unifacial flaking extends across the entire dorsal face and a few short, shallow, broad rejuvenation scars have been driven from the margin of the ventral face. One margin adjacent to the pointed end

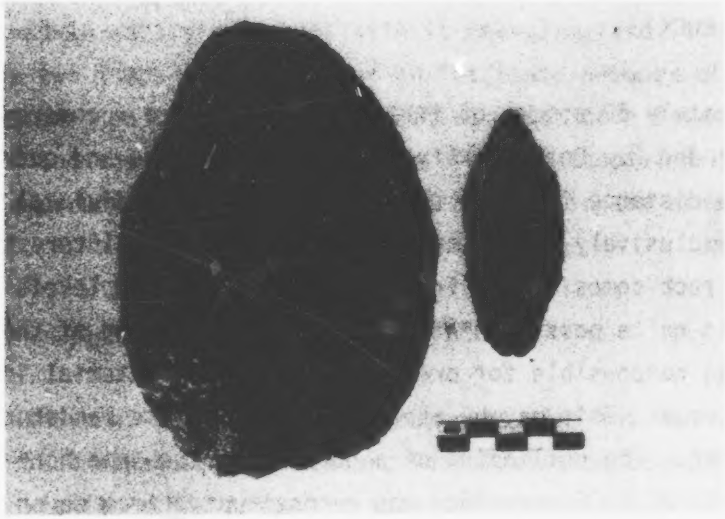


Figure 56. Large oval biface and pointed uniface from DkPj-27.

is rounded but does not extend to the tip, which suggests use as a side scraper. It is 83.4 mm long, 34.5 mm wide, 14.5 mm thick and weighs 44.4 g.

DkPj-27-31

This side scraper is made of dark grey silicified mudstone and appears to have been made on a large bipolar spall and retains a cortex on the dorsal surface (Figure 55d). The impacted end is thick and narrow and expands to a relatively thin rectangular blade with a planoconvex cross section. One straight lateral margin has marginal retouch. Microflaking on the ventral side of this edge suggests use for scraping bone. It is 50.0 mm long, 26.6 mm wide, 7.4 mm thick and weighs 11.4 g.

DkPj-27-37

This is a thin fragment of a bifacially retouched artifact made of dark grey silicified mudstone (Figure 55e). One margin has been bifacially retouched to form an almost straight edge which retains an obtuse point of juncture which may represent a shoulder of either a small corner or side notched projectile point. It is 12.0 mm long, 14.6 mm wide, 2.8 mm thick and weighs 0.5 g.

FIRE BROKEN ROCK

Approximately 50 pieces of fire broken rock were recovered in total from Units 1 and 2. Both locally available sandstone and quartzite derived some distance from the site were present. Individual piece size was almost exclusively under ten square centimetres. Interestingly, the fire broken rock comes mostly from the heavily charred levels in both units. It is quite possible that the intensive burning of the middle bone lens was responsible for creating some of the material identified as fire broken rock. This may be especially true of the sandstone which is easily charred. The potlidding of a point from the same bone lens (specimen DkPj-27-5 [Figure 55c] was reconstructed from seven pieces) is further evidence of the heat generated by the burning of the bone bed. At present, it is impossible to differentiate the fire broken rock which may have been used at the site from that which may have been naturally created by fire.

SUMMARY

Our preliminary testing of the Calderwood Buffalo Jump indicates the presence of at least three distinct kill events dating into the Middle Prehistoric Period. This in itself is significant, as the great majority of jumps in the Northern Plains date from the Late Prehistoric Period onwards (see Frison 1978). It also opens a number of areas for analysis of communal kill activities. Therefore, research prospects for the 1986 season include the exploration of the site area with small test pits that will help determine the range and nature of the bone beds. A suitable area will then be singled out for block excavation employing natural stratigraphic levels. Although no distinct cultural horizons were identified past 80 cm below surface, some additional deeper testing will be conducted. The fact that a few lithic artifacts continued to be recovered to the termination of Unit 1 at a depth of 1.9 m, suggests that deeper occupations may be present.

There is great value in further exploration of DkPj-27. Because of its proximity to Head-Smashed-In, it would further our understanding of the relationship of multiple kill sites in the region. Our idea of Head-Smashed-In as a single kill site is changing, and it now appears that these two jumps may be part of an intricate network of communal kills that existed in the Porcupine Hills. With more intense examination of DkPj-27 and the potential discovery of new, associated kill sites, a greater comprehension of communal bison hunting in the area can be achieved.

ACKNOWLEDGEMENTS

The authors wish to thank the landowners, Jim and Denise Calderwood, and their land manager, John Hester, for permission to work on their land. We wish to acknowledge the assistance provided by Guy Trott with the faunal identification and cataloguing, Bob Dawe for his assistance with the lithic descriptions, and Milt Wright for rotating our matrices. Wendy Johnson, Martina Purdon, John Albanese and Gabriella Prager provided assistance with drafting, typing, photography and editing, respectively.

PARKS CANADA ARCHAEOLOGY IN ALBERTA, 1985

By

Don Steer, Kevin Montgomery, Daryl Fedje, James White, Malcolm James,
Rod Pickard, Ian Sumpter, and Heather D'Amour
Parks Canada, Western Region

INTRODUCTION

The Western Regional Office Archaeological Research Unit (Calgary) of Parks Canada initiated and administered 108 archaeologically-related projects in Alberta and British Columbia in 1985 (Fiscal Year 1985-86). This number represents an increase of approximately 19% over the projects completed during the previous year. Twenty-six of the 108 projects were related to National Parks or National Historic Parks and Sites in British Columbia. Of the Alberta projects (Table 8), 44 involved historical resources impact assessments (areal and linear surveys; site assessments), three involved mitigations (salvage and conservation archaeology involving controlled excavations at several sites) and 35 were special projects (support activities, special studies, research). Many of the special projects were completed under contract utilizing the services of consultants and technical facilities throughout Canada. Of note were faunal analyses, radiocarbon dating, paleoenvironmental research and lithic analyses. Several special projects were completed employing in-house expertise. Noteworthy projects included paleoenvironmental research by James White in Banff National Park, regional site inventory and compilations up-date by Kevin Montgomery, initiation of a recently implemented collections management system for Parks Canada by Heather D'Amour, extensive site assessment at Jasper House National Historic Site by Rod Pickard, and a continuation of the three year Jasper National Park historical resources site survey and inventory by Malcolm James. All projects were under the financial management and administrative responsibility of the Head of Archaeological Research, Don Steer, of the Historical and Archaeological Research Section, Programming and Development Division.

Results from all projects will appear in one of five formats: 1) unpublished in-house manuscripts; 2) Parks Canada's Microfiche Report Series; 3) Parks Canada's Research Bulletin Series; 4) Parks Canada's Studies in Archaeology, Architecture and History; or, 5) external publications. Access to, or information on these reports can be gained through the Archaeological Research Unit, Calgary.

The remainder of this paper consists of brief summaries of the investigations and results of major Parks Canada projects carried out in Alberta in 1985.

Historical Resources Data Compilation (Kevin Montgomery)

The Archaeological Research Unit of Parks Canada's Western Region has recently undergone a reorganization of its historical resource data system (WRA-85-16). This reorganization was implemented under contract last winter and has since become the responsibility of the Unit's Site Data Co-ordinator. This new position is responsible for the maintenance and co-ordination of the various data systems pertaining to archaeological and historical resources within National Parks and National Historic Parks and Sites. Relevant data ranges from site-specific information to resource management overview maps, as well as large scale areal studies and park resource reports. Reorganization of the existing systems used to manage these types of data has resulted in a more accurate and integrated inventory with greater flexibility to meet the needs of park planners and archaeological researchers. The Site Data Co-ordinator is also responsible for determining and maintaining standards of data quality so that the Region's historical resource inventory is compatible with those of Parks Canada Headquarters, the Archaeological Survey of Alberta, and the Heritage Conservation Branch of British Columbia.

Inventory management is becoming increasingly more complex with the rapid accumulation of recorded historical resources within the Region. Table 9 illustrates both newly recorded and re-visited sites from all HRIAs, mitigation, and special research projects carried out in Alberta by the Archaeological Research Unit in 1985. Greater integration and more efficient access to the information will hopefully result in more effective management of park resources.

Banff National Park Field Programme, 1985 (Daryl Fedje)

During 1985, archaeological programmes were conducted in three areas of Banff National Park. These included an impact assessment of the proposed Phase III Trans-Canada Highway development between the Sunshine Interchange and Lake Louise (Projects WRA-85-4, 6; Figure 57), mitigation of a proposed buried AGT communication cable route (Projects WRA 85-9, 26; Figure 58) in the Vermilion Lakes area (including excavations at the deeply stratified Second Lake site [EhPv-58]), and preliminary testing of the deeply stratified site EhPw-1, located some 10 km west of Banff Townsite (Project WRA-85-107; Figure 58). The latter two projects were most productive (see Fedje and White 1986).

Banff Paleoecological Research (James M. White)

Paleoecological research is being carried out in the Bow Valley of Banff National Park (WRA-85-13; Figures 57, 58), in conjunction with archaeological research. The objectives are to determine a minimum age of deglaciation and to create a paleoecological reconstruction, especially for the late Pleistocene and early Holocene.

Copper Lake, at Castle Junction, is just within the limits of the Eisenhower Junction Advance (Rutter 1972). Basal radiocarbon dates suggest a minimum age for deglaciation of greater than 12,000 years B.P., though the results are not considered final due to an inversion in the basal radiocarbon dates. A pioneering willow-grass-sage zone had apparently given way by 12,000 years B.P. to vegetation somewhat similar to today, though the forest was more open and shrubby until about 8000 years B.P. (White 1985). A reconstruction based on the preliminary pollen analysis and radiocarbon dating is in preparation (Fedje and White 1986). Detailed pollen and macrofossil analyses, radiocarbon dates and tephra identification will be reported later (White 1986).

Kingfisher Pond (informal name) near Lake Louise, about 30 km up-valley of Copper Lake, has recently been cored. Radiocarbon samples

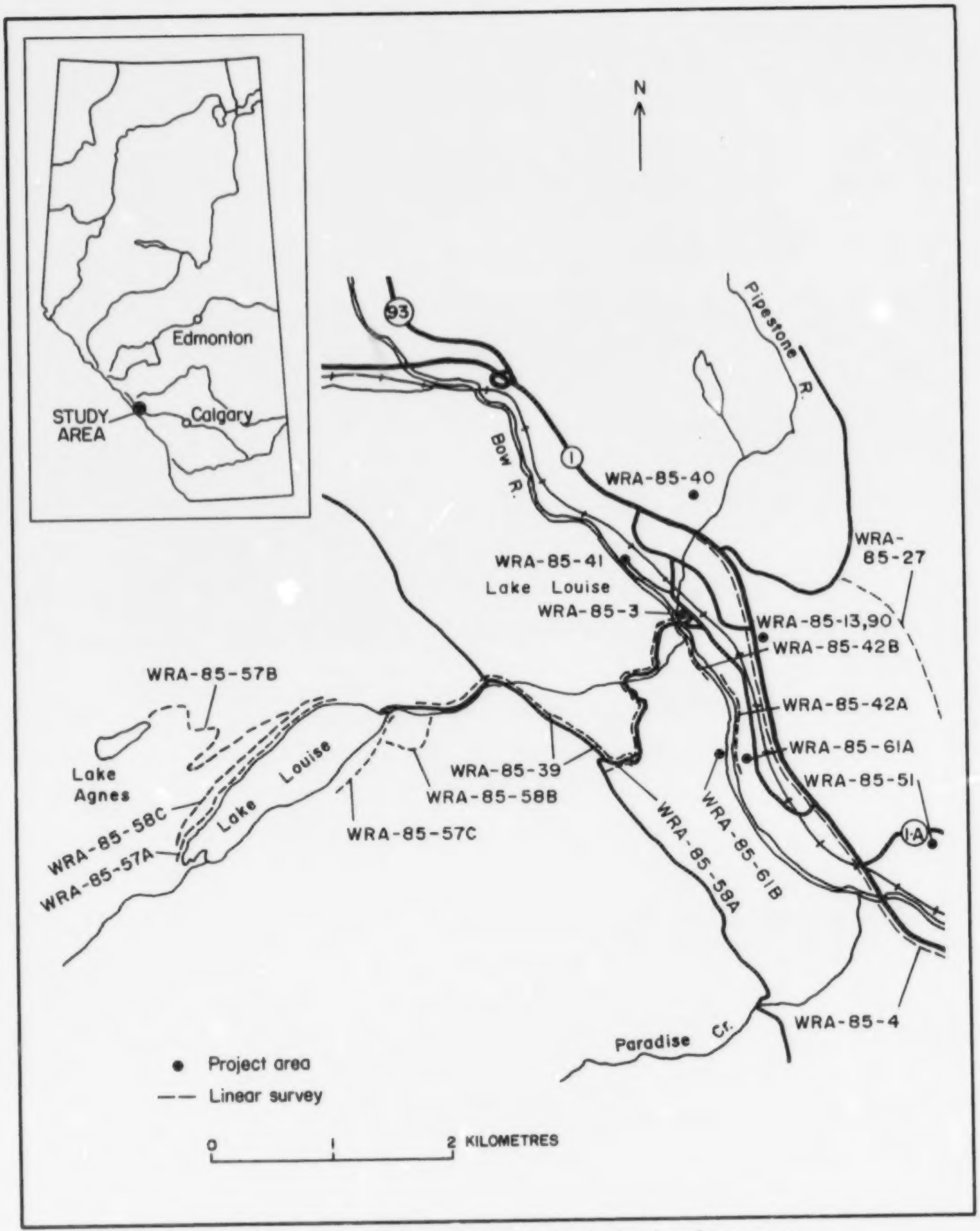

Edmonton
STUDY AREA
Calgary
N
93
1
1A
Bow R.
Pipestone R.
WRA-85-40
WRA-85-27
WRA-85-41
Lake Louise
WRA-85-3
WRA-85-13,90
WRA-85-42B
WRA-85-57B
WRA-85-42A
WRA-85-61A
WRA-85-51
Lake Agnes
Lake Louise
WRA-85-39
WRA-85-58B
WRA-85-58C
WRA-85-57A
WRA-85-57C
WRA-85-58A
WRA-85-61B
WRA-85-4
Paradise Cr.
● Project area
— — Linear survey
0
1
2 KILOMETRES

Figure 57. Locations of 1985 projects in Lake Louise area.

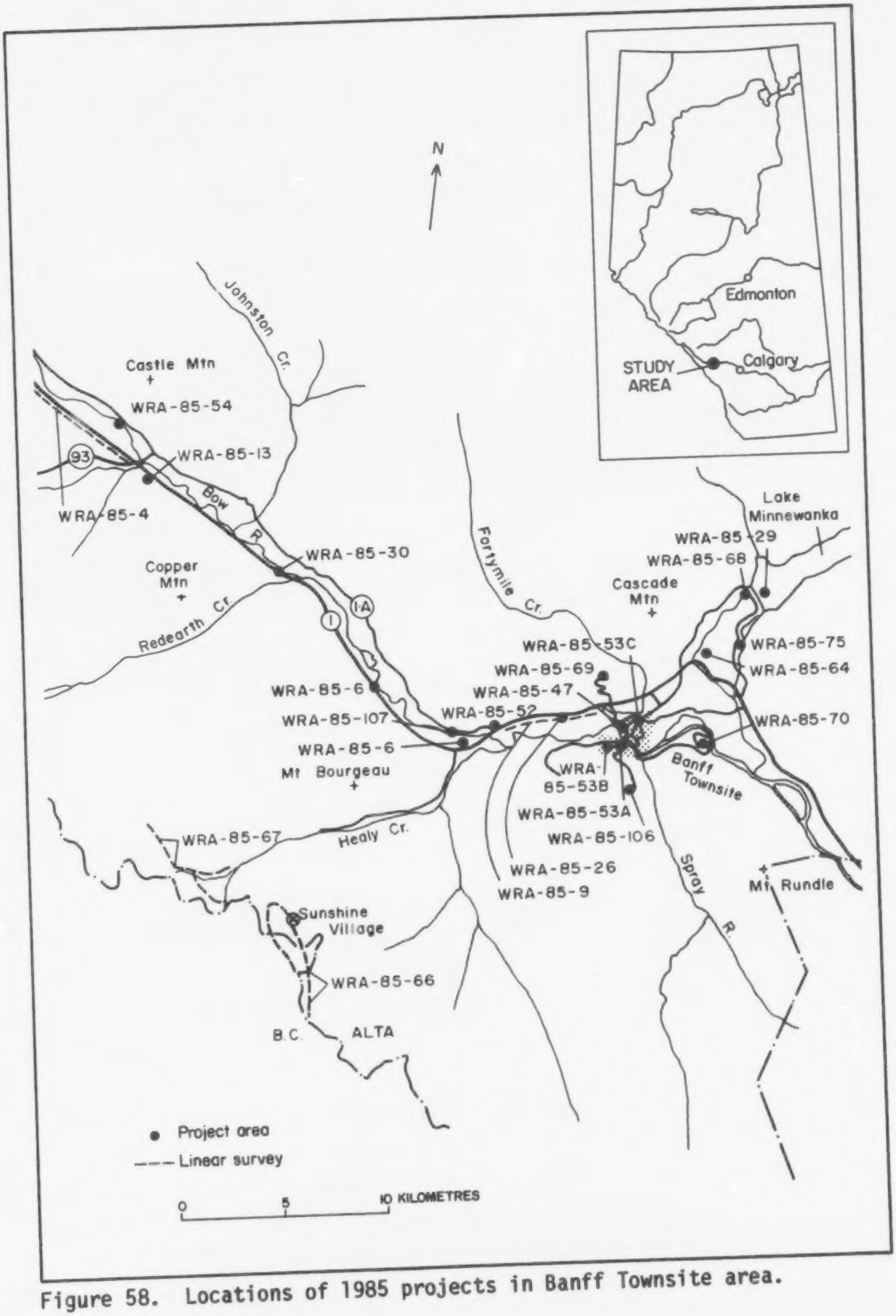

N
STUDY AREA
Edmonton
Calgary
Johnston Cr.
Castle Mtn
WRA-85-54
WRA-85-13
93
WRA-85-4
Bow R.
Copper Mtn
WRA-85-30
1
1A
Redearth Cr.
Fortymile Cr.
Lake Minnewanka
WRA-85-29
WRA-85-68
Cascade Mtn
WRA-85-53C
WRA-85-75
WRA-85-64
WRA-85-69
WRA-85-47
WRA-85-6
WRA-85-107
WRA-85-52
WRA-85-70
WRA-85-6
Mt Bourgeau
WRA-85-53B
Banff Townsite
WRA-85-53A
WRA-85-106
WRA-85-67
Healy Cr.
WRA-85-26
WRA-85-9
Spray R.
Mt Rundle
Sunshine Village
WRA-85-66
B.C.
ALTA
Project area
Linear survey
0
5
10 KILOMETRES

Figure 58. Locations of 1985 projects in Banff Townsite area.

have been submitted,and the analyses of sediment lithology and basal pollen components have been contracted to David Friesen. Results will be reported when complete (White 1986).

Jasper National Park Historical Resources Inventory 1985 (Malcolm James)

In 1985, the Jasper Historical Resources Inventory (WRA-85-17; Figure 59) entered its second season (Pickard and James 1986). The purpose of the survey is to locate and preliminarily assess any historical resources within the Yellowhead Corridor in order to prepare a management plan to facilitate the development and interpretation of these resources. This management plan will also be used to mitigate the impact of other forms of development (e.g., construction or upgrading of roads, railways, pipelines) within this high-use area of the park.

In 1984, Pickard (1985) surveyed the lower end of the Athabasca River Valley within the park, covering an area from the eastern park gates to the Snaring and Maligne rivers on the west and east sides of the valley, respectively. Using similar research methodologies and sampling designs, the 1985 research programme covered the area from the Snaring River south to the Miette River at Jasper Townsite. The survey did not extend up the Miette River past Cabin Creek at the west end of the townsite. Some less intensive investigations were afforded to high kame terraces north of the Maligne River and a high saddle containing Keith Lake, east of the main Athabasca Valley. These latter areas were surface surveyed to follow-up on information derived from park residents who had observed sites in those locales.

A total of 65 historic period sites and 27 prehistoric sites were recorded and an additional 11 sites were re-visited. Many of the historic period sites ranged in age between the mid-19th century and the mid-20th century; some sites are of undetermined age and may pre-date the mid-19th century. With regard to the prehistoric sites, few diagnostic artifacts were recovered, although a black chert Cody Complex point was recovered from site FfQm-56 and a large obsidian (reworked Thompson Phase?) point was recovered from FfQm-129. Several sites found on high terraces and several large campsites hold great promise for future

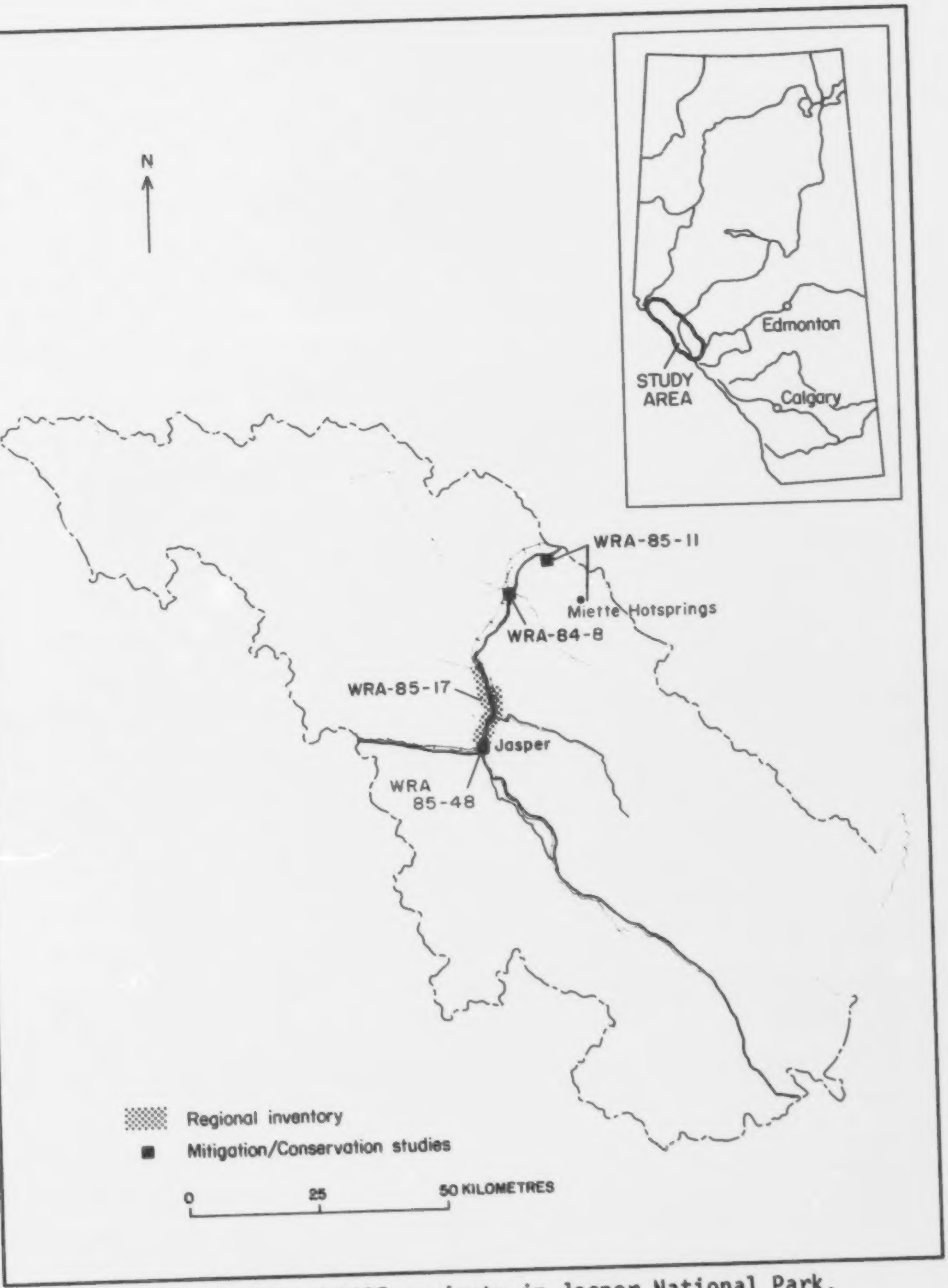

N
STUDY AREA
Edmonton
Calgary
WRA-85-11
Miette Hotsprings
WRA-84-8
WRA-85-17
Jasper
WRA 85-48
▨ Regional inventory
■ Mitigation/Conservation studies
0
25
50 KILOMETRES

Figure 59. Locations of 1985 projects in Jasper National Park.

research into the length and density of both the historic and prehistoric occupations within the park.

Archaeological Investigations at Jasper House National Historic Site (Rod Pickard)

In 1985, a two month project was conducted at the ca. 1830 to 1884 Jasper House (WRA-85-8; Figure 59). The goals of the investigations were to mitigate the impact of continuing erosion and to establish a preliminary structural history based on the results of excavation. The project encompassed three separate activities: the block excavation of one building, the delineation of additional building remains through test trenching, and the location of buried cultural features through transect testing. A total of 2500 artifacts were recovered, reflecting both Hudson's Bay Company and subsequent period (early 1890s) occupations of the site area. The results of excavation provided significant architectural data in addition to identifying buried refuse deposits and general activity areas. The archaeological project was supplemented by a historical research contract which focused on Jasper House and other sites of the Upper Athabasca Valley (Ens and Potyondi 1986).

The 1985 project was successful in further defining the nature and distribution of buildings and other cultural features at Jasper House. Minor investigations are scheduled for 1986.

Historical Resources Inventory and Assessment of Pocahontas, Jasper National Park, 1985 (Rod Pickard)

I.R. Wilson Consultants Ltd. spent two weeks during the fall of 1985 at the historic coal mine community of Pocahontas (1908 - ca. 1921), completing the historical resource inventory for the site (WRA-85-11; Figure 59). The inventory, directed by Ian Wilson with the assistance of Brian Vivian, focused on the mine and townsite areas. In 1983, the Archaeological Research Unit mapped and recorded 53 historic period features at the site. The 1985 inventory added 70 additional historic features to the known inventory, bringing the number of recorded features to 123. Mining-related and residential features identified in 1985 included building remains (houses, privies, industrial structures), root cellars, well holes, water boxes, concrete foundations, mine entrances, small to large refuse dumps and unidentified depressions. The features were mapped and scale drawings of the townsite and mine site were produced. Remains of the water supply system were also located and recorded. Several 1 x 1 m test units were excavated in various refuse dumps in an attempt to identify both specific activity areas and possible temporal differences in site use. Material culture remains recovered during excavation generally reflected the site's age, short term occupation, and coal mining/domestic functions. One prehistoric site was recorded within the coal mine area. The project is viewed as a success in further defining the nature and extent of historic features at Pocahontas.

In 1985, I.R. Wilson Consultants also conducted a historical resources inventory of the Mystery and Whitehorse trails near the Miette Hot Springs (Wilson 1985). One prehistoric site consisting of a large quartzite biface was recorded on a mountain ridge on the Mystery Trail. Although evinced by only a single artifact, the discovery of this site has added information to archaeologically unknown terrain in the high country of Jasper National Park.

Obsidian Source Analysis for Banff and Jasper National Parks
(Malcolm James)

In 1985, obsidian samples from five prehistoric sites were submitted to x-ray fluorescence analysis in order to determine their source of origin (WRA-85-103). The results from two sites (EhPv-7 and EhPv-8), just west of Banff Townsite, indicated that the material was being imported from as far away (over 700 linear kilometres) as Yellowstone National Park, Wyoming, and from an unidentified source that is likely located in southern British Columbia or the northwestern United States.

Two sites sampled in Jasper National Park produced obsidian that was derived from Anahim Mountain, Flow #1 (FfQm-24 and FfQm-129), and one site contained obsidian from Mount Edziza, Flow #3 (FfQm-26). These sources are 480, and over 900 linear kilometres distant, respectively.

It appears that extensive obsidian acquisition networks were being utilized during the Prehistoric Period in the Rocky Mountains. From this preliminary research, based on a small sample size, it appears that different obsidian sources were exploited by the prehistoric residents of the Bow and Athabasca River valleys. These acquisition patterns may have important implications for studies into the ethnicity and interrelations between the prehistoric inhabitants of the Rocky Mountains and the neighbouring culture areas of Alberta and British Columbia.

Historical Resources Salvage Programme in Alberta National Parks

(Ian Sumpter)

During the 1985 field season, the Archaeological Research Unit's salvage crew conducted a total of 36 historical resources impact assessments (HRIAs) within three national parks in Alberta (Sumpter 1986a, 1986b, 1986c). The parks included Banff (20 HRIAs), Elk Island (6 HRIAs) and Waterton Lakes (10 HRIAs) (see Table 8; Figures 57, 58, 60, 61).

In general, the objectives of the programme were to: assess proposed development projects within the noted national parks in terms of potential to impact historical resources; identify, locate and assess both previously known and newly discovered historical resources relating to the HRIAs; and to provide recommendations to Parks Canada management for each historical resource site regarding mitigative measures necessitated by the development projects.

In total, 33 historical resources were identified in association with 14 of the 36 projects; these include four paleontological, 16 historic, and nine prehistoric sites, as well as three sites evincing both prehistoric and historic components. The sites vary in heritage value, from an isolated surface find to highly significant cultural resources (Table 9).

Archaeological Collections Management (Heather D'Amour)

The Archaeological Research Unit has initiated the establishment of Regional Reference Collections (WRA-85-15). The long term plan is to

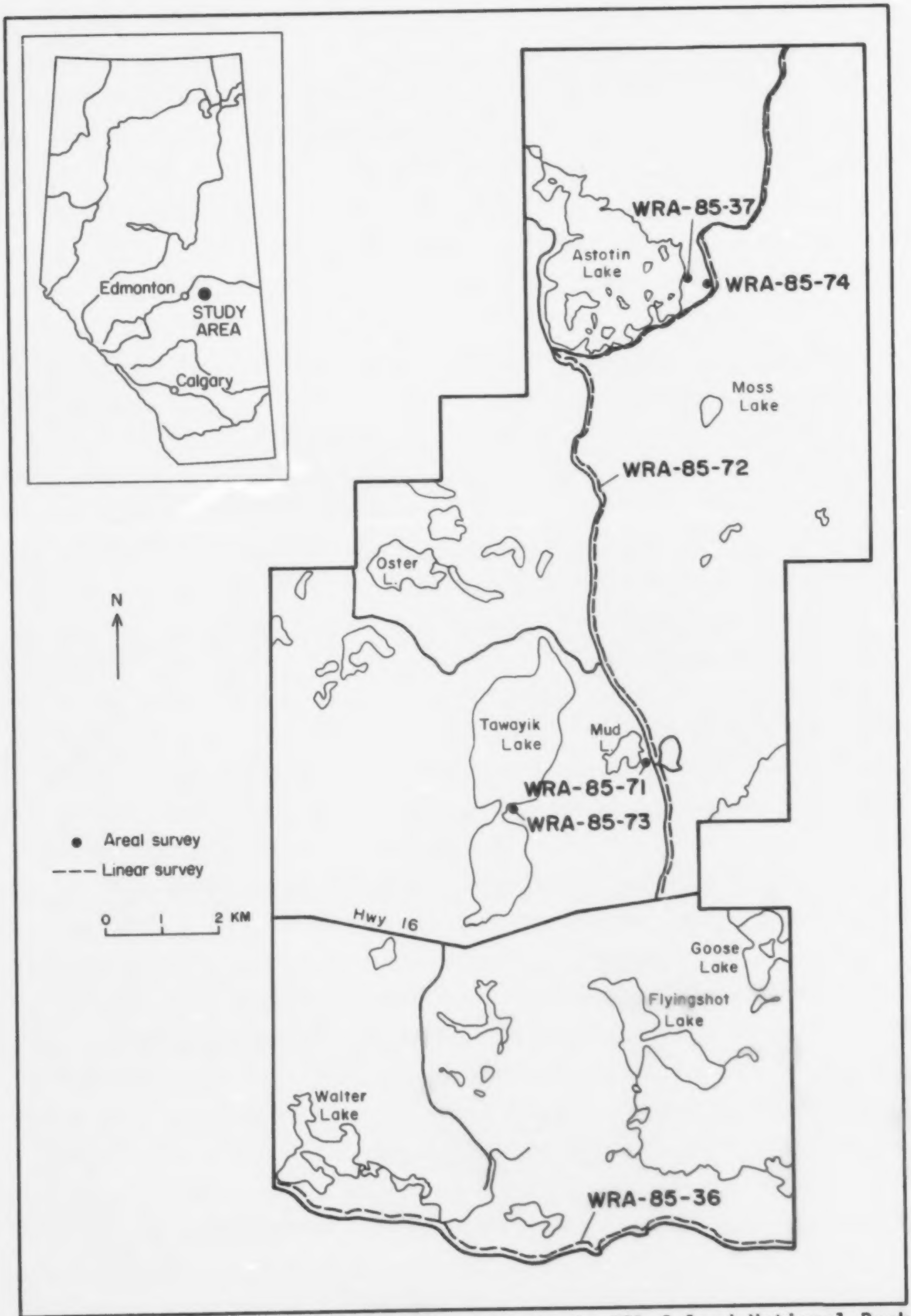

Edmonton
STUDY AREA
Calgary
N
● Areal survey
--- Linear survey
0 1 2 KM
WRA-85-37
Astotin Lake
WRA-85-74
Moss Lake
WRA-85-72
Oster L.
Tawayik Lake
Mud L.
WRA-85-71
WRA-85-73
Hwy 16
Goose Lake
Flyingshot Lake
Walter Lake
WRA-85-36

Figure 60. Locations of 1985 HRIA projects in Elk Island National Park.

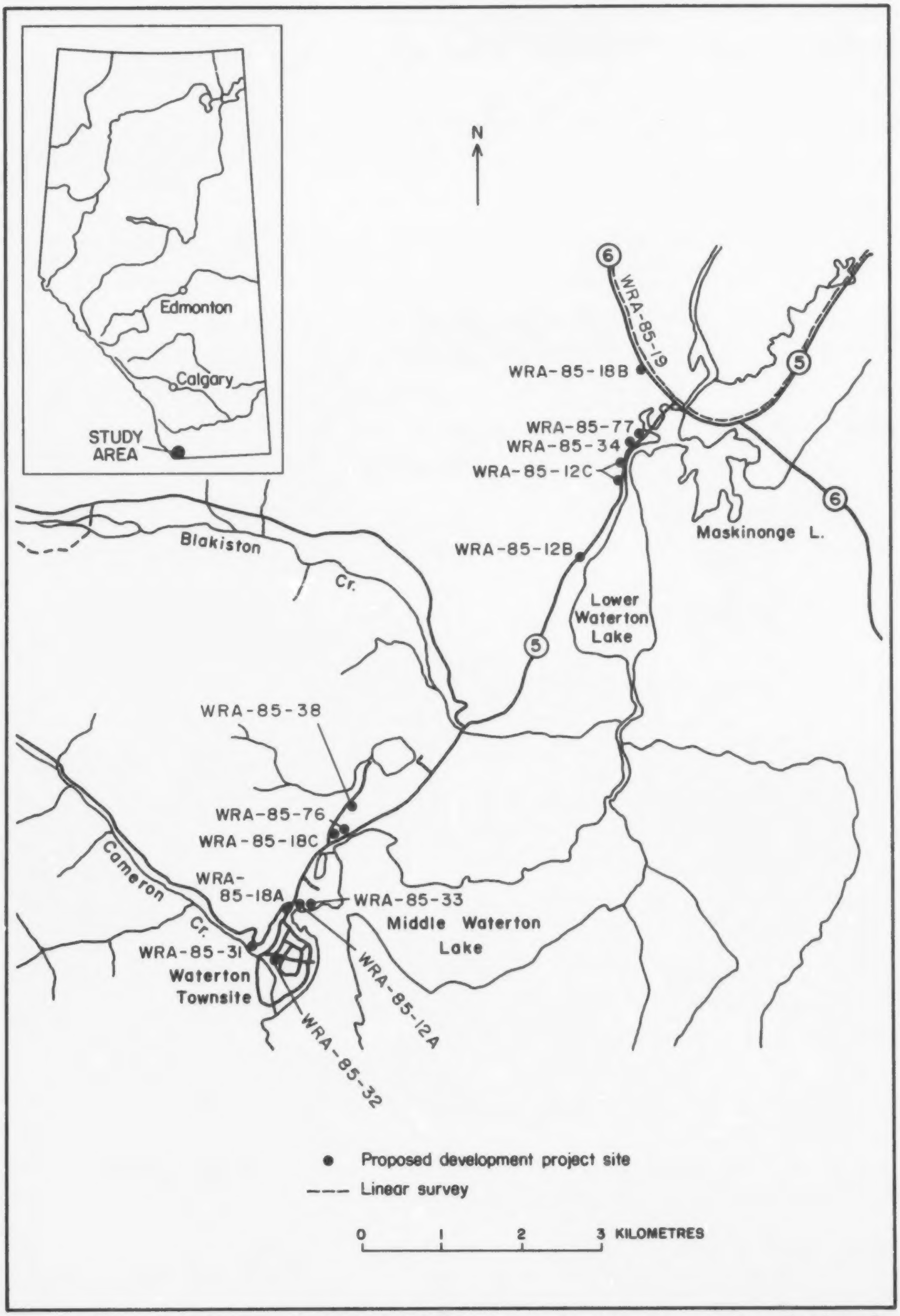

Edmonton
Calgary
STUDY AREA
N
6
WRA-85-19
5
WRA-85-18B
WRA-85-77
WRA-85-34
WRA-85-12C
6
Maskinonge L.
Blakiston
Cr.
WRA-85-12B
Lower Waterton Lake
5
WRA-85-38
WRA-85-76
WRA-85-18C
Cameron
Cr.
WRA-85-18A
WRA-85-33
Middle Waterton Lake
WRA-85-31
Waterton Townsite
WRA-85-12A
WRA-85-32
● Proposed development project site
--- Linear survey
0 1 2 3 KILOMETRES

Figure 61. Locations of 1985 HRIA projects in Waterton Lakes National Park.

select artifacts from Prehistoric and Historic Period assemblages which represent common or diagnostic items and themes. The first stage of reference collection compilation has concentrated on historic period materials dating from 1799 to 1950 in the categories of glass (bottles, tableware, pane and mirror), beads, ceramic household items and building hardware. A type collection of lithic materials from prehistoric assemblages is also being prepared and is currently focusing on material from Banff and Jasper National Parks. Collections Management activities have also been directed towards processing, cataloguing and analysing materials associated with the archaeological projects described earlier in this report. Much of the work has been handled through contracts supervised by the Head of Archaeological Research, the Collections Co-ordinator and the Project Archaeologists.

Table 8. 1985 Alberta projects conducted/implemented by the Archaeological Research Unit, Parks Canada, Western Region.

Project Number	Researcher	Project Description
WRA-85-1	James White/ Don Steer	Special Project - Computer/Data Base for Archaeological Research Unit, Western Regional Office
WRA-85-3	Ian Sumpter	HRIA - CPR Underpass at Lake Louise, Banff National Park
WRA-85-4	Daryl Fedje	HRIA - Twinning Trans-Canada Highway Kilometres 56 to 73, Banff National Park
WRA-85-6	Daryl Fedje	Mitigation - Twinning Trans-Canada Highway Kilometres 26 to 73, Banff National Park
WRA-85-8	Rod Pickard	Special Project - 1985 Jasper House Archaeology, Jasper National Park
WRA-85-9	Daryl Fedje	HRIA - AGT Telephone Line Installation, Banff National Park
WRA-85-11	Ian Wilson	HRIA - Fiddle River Redevelopment/ Pocahontas Townsite (contract), Jasper National Park
WRA-85-12	Ian Sumpter	Mitigation - Highway 5 Improvements, Waterton Lakes National Park
WRA-85-13	James White	Special Project - Banff Paleoecological Research, Western Regional Office
WRA-85-14	Gisela Engels (U of C)	Special Project - Artifact Tabulation and Computer Graphics (contract), Western Regional Office
WRA-85-15	Heather D'Amour	Special Project - Artifact Management for Archaeology, Western Regional Office
WRA-85-16	Kevin Montgomery	Special Project - Regional Site Data Compilations, Western Regional Office
WRA-85-17	Malcolm James	Special Project - Jasper Historical Resource Inventory, Jasper National Park
WRA-85-18	Ian Sumpter	HRIA - Natural Gas Transmission Line Installation Monitoring, Waterton Lakes National Park

Table 8 continued

Project Number	Researcher	Project Description
WRA-85-19	Ian Sumpter	HRIA - Cardston-Pincher Creek Highway Development, Waterton Lakes National Park
WRA-85-21	Don Steer	HRIA - Fur Press/Audio Guide Installation, Rocky Mountain House National Historic Park
WRA-85-22	James White	Special Project - Archaeology Exhibit for Banff National Park, Western Regional Office
WRA-85-24	Don Gardner	Special Project - Artifact Reproduction (contract), Western Regional Office
WRA-85-26	Daryl Fedje	Mitigation - AGT Telephone Line Installation, Banff National Park
WRA-85-27	Daryl Fedje	HRIA - Bow Valley Parkway Whitehorn Road Section, Banff National Park
WRA-85-29	Keith McCandlish	Special Project - Lake Minnewanka Dam Underwater Survey/Educational Programme (agreement), Banff National Park
WRA-85-30	Daryl Fedje	HRIA - Fossil Fish Site 527R, Banff National Park
WRA-85-31	Ian Sumpter	HRIA - Waterton Townsite Water Reservoir, Waterton Lakes National Park
WRA-85-32	Ian Sumpter	HRIA - Water Well Installation, Waterton Lakes National Park
WRA-85-33	Ian Sumpter	HRIA - Emerald Bay Beach Site DgPl-3, Waterton Lakes National Park
WRA-85-34	Ian Sumpter	HRIA - Natural Gasline Reclamation Site DgPl-10, Waterton Lakes National Park
WRA-85-36	Ian Sumpter	HRIA - South Boundary Fence Realignment Wood Bison Isolation Area, Elk Island National Park
WRA-85-37	Ian Sumpter	HRIA - Astotin Lake Day-Use Area Development, Elk Island National Park

Table 8 continued

Project Number	Researcher	Project Description
WRA-85-38	Ian Sumpter	Special Project - Mechanical Screening of Extracted Fill from Site DgPl-8, Waterton Lakes National Park
WRA-85-39	Ian Sumpter	HRIA - Lake Louise Drive Improvements, Banff National Park
WRA-85-40	Ian Sumpter	HRIA - Pipestone Trailhead Parking Area, Banff National Park
WRA-85-41	Ian Sumpter	HRIA - Tramline Trailhead Parking Facility, Banff National Park
WRA-85-42	Ian Sumpter	HRIA - Lower Lake Louise Pathway Development, Banff National Park
WRA-85-46	Sheila Robinson	Special Project - Echo Creek Site Archaeology Research/Report, Western Regional Office
WRA-85-47	Ian Sumpter	HRIA - Mineral Springs Hospital Development, Banff National Park
WRA-85-48	Rod Pickard	HRIA - Block II, Lot 2 Development, Jasper Townsite, Jasper National Park
WRA-85-49	Barry Podyondi	Special Project - Historical Research in Support of the 1985 Jasper House Archaeological Research Programme (contract), Western Regional Office
WRA-85-50	Gisela Engels (U of C)/ Sheila Robinson	Special Project - Echo Creek Site Lithic Analysis Computer Programme (contract), Western Regional Office
WRA-85-51	David Friesen	Special Project - Paleoenvironmental Testing (Corral Creek), Bow Valley Parkway, Banff National Park
WRA-85-52	Ian Sumpter	HRIA - Fireside Picnic Area/Trailhead Parking Development, Banff National Park
WRA-85-53	Ian Sumpter	HRIA - Staff Residential Housing (Cave and Banff Avenues) Development, Banff National Park
WRA-85-54	Ian Sumpter	HRIA - Storm Mountain Viewpoint, Banff National Park

Table 8 continued

Project Number	Researcher	Project Description
WRA-85-57	Ian Sumpter	HRIA - Upper Lake Louise Hiking Trails, Banff National Park
WRA-85-58	Ian Sumpter	HRIA - Upper Lake Louise Horse Trails, Banff National Park
WRA-85-61	Ian Sumpter	HRIA - Lake Louise Campground Rehabilitation, Banff National Park
WRA-85-62	Ian Sumpter	HRIA - Num-Ti-Jah Lodge Day-Use Area, Banff National Park
WRA-85-63	Ian Sumpter	HRIA - Coleman Creek Rest/Picnic Area, Banff National Park
WRA-85-64	Ian Sumpter	HRIA - Cascade Pit Overflow Campground, Banff National Park
WRA-85-66	Ian Sumpter	HRIA - Sunshine Meadows Trail, Banff National Park
WRA-85-67	Ian Sumpter	HRIA - Healy Pass Trail Reconstruction, Banff National Park
WRA-85-68	Ian Sumpter	HRIA - Lake Minnewanka Dam Spillway, Banff National Park
WRA-85-69	Ian Sumpter	HRIA - Mount Norquay Ski-Lift Development, Banff National Park
WRA-85-70	Ian Sumpter	HRIA - Banff Townsite Sewage Treatment Plant, Banff National Park
WRA-85-71	Ian Sumpter	HRIA - Abbatoir Facility Development, Elk Island National Park
WRA-85-72	Ian Sumpter	HRIA - Parkway Access Road, Elk Island National Park
WRA-85-73	Ian Sumpter	HRIA - Historical Resource Site FjPf-7, Elk Island National Park
WRA-85-74	Ian Sumpter	HRIA - Sandy Beach Campground Improvements, Elk Island National Park
WRA-85-75	Ian Sumpter	HRIA - Relocation of Panabode Housing, Two Jack Lake Main Campground, Banff National Park

Table 8 continued

Project Number	Researcher	Project Description
WRA-85-76	Ian Sumpter	HRIA - Lower Compound Access Road, Waterton Lakes National Park
WRA-85-77	Ian Sumpter	HRIA - New Kiosk Utility Line Installation, Waterton Lakes National Park
WRA-85-78	Carlann Fowler	Special Project - 1985 Jasper House Faunal Analysis (contract), Western Regional Office
WRA-85-79	Don Steer	HRIA - Monitoring Buffalo Paddock Fenceline Extension, Rocky Mountain House National Historic Park
WRA-85-82	Heather D'Amour	Special Project - Artifacts for D.O.E. Film Production, Western Regional Office
WRA-85-83	Saskatchewan Research Council	Special Project - 1985 Archaeology Project C-14 Dating (contract), Western Regional Office
WRA-85-84	Thayer Head	Special Project - 1985 Archaeology Projects Faunal Analysis (contract), Western Regional Office
WRA-85-86	Richard Lalonde	Special Project - 1985 Archaeology Projects Drafting Support (contract), Western Regional Office
WRA-85-87	Beth Woolley	Special Project - 1985 Archaeology Projects Artifact Illustration (contract), Western Regional Office
WRA-85-88	Brock University	Special Project - 1985 Archaeology Projects C-14 Dating (contract), Western Regional Office
WRA-85-89	Sheila Greaves	Special Project - 1985 Archaeology Projects Lithic Analysis (contract), Western Regional Office
WRA-85-90	David Friesen	Special Project - Sedimentological and Palynological Analysis, Kingfisher Pond (contract), Banff National Park

Table 8 continued

Project Number	Researcher	Project Description
WRA-85-92	Harold Hussey	Special Project - Scil Profile (Transfer) Exhibit for Archaeology (Vermilion Lakes site) (contract), Western Regional Office
WRA-85-94	George Hennig	Special Project - 1985 Archaeology Projects Artifact Photography (contract), Western Regional Office
WRA-85-96	Helen Lemon	Special Project - General Support Programme for Archaeology (contract), Western Regional Office
WRA-85-100	Harold Hussey	Special Project - Specialty Services/Products for Archaeology (contract), Western Regional Office
WRA-85-101	Dr. L. Jozsa (Fortinek Canada Corp.)	Special Project - Dendrochronological Study, Jasper House National Historic Site, Western Regional Office
WRA-85-102	Kevin Montgomery	Special Project - Banff National Park Historical Resources Inventory and Compilation Up-date, Western Regional Office
WRA-85-103	Malcolm James	Special Project - Obsidian Source Analysis for Banff and Jasper National Parks, Western Regional Office
WRA-85-104	Don Steer/ Malcolm James/ Kevin Montgomery	Special Project - Parks Canada Archaeology in Alberta 1985 Submission to A.S.A. Occasional Papers, Western Regional Office
WRA-85-105	Don Steer/ Kevin Montgomery	Special Project - Parks Canada Archaeology in Western Region, 1985 Submission to Parks Canada Research Bulletin Series, Western Regional Office
WRA-85-106	Kevin Montgomery	HRIA - Sulphur Mountain Pictographs (site EgPv-6), Banff National Park
WRA-85-107	Daryl Fedje	Special Project - Prehistoric Site 360R Testing and Preliminary Evaluation, Banff National Park

Table 8 continued

Project Number	Researcher	Project Description
WRA-85-108	Daryl Fedje/ R. Pickard/ Malcolm James	Special Project - Contributions to A.S.A. Publication on Eastern Slopes Prehistory

Table 9. Summary of Sites Assessed in Western Region National Parks in 1985.

Project Number	Borden Number	Site Type
Banff National Park		
WRA-85-102	EgPu-15*	Historic grave
WRA-85-102	EgPu-16	Historic log ramp
WRA-85-102	EgPv-5*	Historic cabin & log sluice way
WRA-85-102	EgPv-6*	Historic pictographs
WRA-85-6	EgPw-3*	Prehistoric isolated find/paleontological
WRA-85-67	EgPw-4*	Historic log cabin
WRA-85-67	EgPx-1*	Historic log cabin
WRA-85-102	EhPv-44	Historic foundation
WRA-85-102	EhPv-45	Prehistoric campsite
WRA-85-26	EhPv-47	Prehistoric campsite
WRA-85-26	EhPv-58	Prehistoric campsite
WRA-85-102	EhPv-74	Prehistoric campsite
WRA-85-26	EhPv-78	Historic commercial site/prehistoric campsite
WRA-85-102	EhPv-81	Prehistoric campsite
WRA-85-102	EhPv-82	Prehistoric campsite
WRA-85-102	EhPw-1*	Prehistoric base camp
WRA-85-102	EhPw-2	Prehistoric base camp
WRA-85-102	EhPw-3	Prehistoric base camp
WRA-85-6	EhPw-13	Prehistoric quarry
WRA-85-102	EhPw-23*	Historic structure
WRA-85-102	EhPw-24*	Prehistoric-undetermined
WRA-85-102	EhPx-5	Prehistoric campsite
WRA-85-102	EhPx-29	Historic stone cairn
WRA-85-102	EjPv-2*	Prehistoric lithic scatter
WRA-85-102	EjPv-3*	Paleontological
WRA-85-102	EjPw-31*	Prehistoric stratified campsite
WRA-85-102	EjPw-32*	Historic cabin
WRA-85-102	EjPw-33*	Prehistoric campsite
WRA-85-102	EjPw-34*	Prehistoric lithic scatter
WRA-85-102	EjPw-35*	Prehistoric isolated find
WRA-85-102	EjPw-36*	Prehistoric lithic scatter
WRA-85-39	EiQb-5	Historic grave
WRA-85-39	EiQb-6	Prehistoric isolated surface find
WRA-85-41	EiQb-13	Historic motel
WRA-85-41	EiQb-14	Historic CPR station
WRA-85-39,41	EiQb-15*	Historic road bed
WRA-85-39	EiQb-16*	Historic isolated surface find
WRA-85-39,58	EiQb-17*	Historic tramway grade
WRA-85-39	EiQb-18*	Historic refuse dump
WRA-85-39	EiQb-19*	Historic refuse dump
WRA-85-39	EiQb-20*	Historic lodge
WRA-85-58	EiQb-21*	Historic work camp

*denotes sites recorded in 1985

Table 9 continued

Project Number	Borden Number	Site Type
Banff National Park (continued)		
WRA-85-39	EiQb-22*	Historic bungalow camp
WRA-85-41	EiQb-24*	Historic railway station
WRA-85-62	EkQc-1*	Historic lodge
Waterton Lakes National Park		
WRA-85-19	DgPk-34	Paleontological find
WRA-85-19	DgPk-40	Prehistoric campsite
WRA-85-19	DgPk-87	Prehistoric isolated surface find
WRA-85-19	DgPk-89*	Paleontological find
WRA-85-12a,18a,33	DgPl-3	Prehistoric campsite
WRA-85-18b,19,38	DgPl-8	Prehistoric campsite
WRA-85-12c	DgPl-9	Prehistoric campsite
WRA-85-34,77	DgPl-10	Prehistoric campsite
WRA-85-19	DgPl-11	Prehistoric campsite
WRA-85-19	DgPl-101	Prehistoric isolated find
WRA-85-12c	DgPl-151	Paleontological find
WRA-85-12c	DgPl-152	Paleontological find
WRA-85-19	DgPl-154*	Prehistoric bison butchering locus
Elk Island National Park		
WRA-85-73	FjPf-7	Prehistoric campsite
WRA-85-72	FjPf-24	Prehistoric surface find
WRA-85-72	FjPf-115*	Prehistoric isolated surface find
WRA-85-36	FjPf-116*	Historic roadbed
Glacier National Park		
WRA-85-10	EhQi-2*	Historic hotel
WRA-85-23	EhQj-3*	Historic CPR bridge footings
Yoho National Park		
WRA-85-80	EhQd-2*	Historic fire lookout
WRA-85-60	EhQd-6	Historic warden's cabin
WRA-85-59	EiQc-3*	Historic bungalow camp
WRA-85-35	EiQd-5*	Historic chalet
WRA-85-59	EjQd-1*	Historic teahouse
Jasper National Park		
WRA-85-17	FfQm-1	Historic house and dairy
WRA-85-17	FfQm-2	Prehistoric multiple activity locus
WRA-85-17	FfQm-4	Prehistoric campsite
WRA-85-17	FfQm-7	Prehistoric campsite/Historic homestead
WRA-85-17	FfQm-9	Prehistoric campsite
WRA-85-17	FfQm-10	Historic depot
WRA-85-17	FfQm-17	Prehistoric isolated find
WRA-85-17	FfQm-18	Prehistoric isolated find
WRA-85-17	FfQm-19	Prehistoric small workshop
WRA-85-17	FfQm-38	Historic cabin

Table 9 continued

Project Number	Borden Number	Site Type
Jasper National Park (continued)		
WRA-85-17	FfQm-44	Historic settlement area
WRA-85-17	FfQm-45	Prehistoric limited activity locus
WRA-85-17	FfQm-53*	Prehistoric lithic scatter
WRA-85-17	FfQm-54*	Prehistoric limited activity locus
WRA-85-17	FfQm-55*	Historic dump
WRA-85-17	FfQm-56*	Prehistoric campsite/Historic pipeline construction
WRA-85-17	FfQm-57*	Prehistoric isolated surface find
WRA-85-17	FfQm-58*	Prehistoric limited activity locus
WRA-85-17	FfQm-59*	Prehistoric lithic scatter
WRA-85-17	FfQm-60*	Prehistoric isolated find
WRA-85-17	FfQm-61*	Prehistoric isolated find
WRA-85-17	FfQm-62*	Historic dump, industrial refuse
WRA-85-17	FfQm-63*	Historic homestead
WRA-85-17	FfQm-64*	Historic gravel operations
WRA-85-17	FfQm-65*	Prehistoric isolated find
WRA-85-17	FfQm-66*	Prehistoric lithic scatter
WRA-85-17	FfQm-67*	Historic homestead
WRA-85-17	FfQm-68*	Historic road construction features
WRA-85-17	FfQm-69*	Historic cellar
WRA-85-17	FfQm-70*	Historic structural features
WRA-85-17	FfQm-71*	Historic camp
WRA-85-17	FfQm-72*	Historic dump
WRA-85-17	FfQm-73*	Historic pit
WRA-85-17	FfQm-74*	Historic logging activity features
WRA-85-17	FfQm-75*	Historic foundation
WRA-85-17	FfQm-76*	Historic refuse pit
WRA-85-17	FfQm-77*	Prehistoric multiple activity locus
WRA-85-17	FfQm-78*	Prehistoric lithic scatter
WRA-85-17	FfQm-79*	Prehistoric lithic scatter
WRA-85-17	FfQm-80*	Prehistoric campsite
WRA-85-17	FfQm-81*	Historic structure
WRA-85-17	FfQm-82*	Prehistoric lithic scatter
WRA-85-17	FfQm-83*	Prehistoric isolated find
WRA-85-17	FfQm-84*	Historic construction camp
WRA-85-17	FfQm-85*	Historic quarry
WRA-85-17	FfQm-86*	Historic dump
WRA-85-17	FfQm-87*	Historic cellar and refuse pit
WRA-85-17	FfQm-88*	Prehistoric isolated surface find
WRA-85-17	FfQm-89*	Historic lobstick
WRA-85-17	FfQm-90*	Historic cabin
WRA-85-17	FfQm-91*	Prehistoric lithic scatter/Historic refuse
WRA-85-17	FfQm-92*	Prehistoric-undetermined
WRA-85-17	FfQm-93*	Historic refuse pit and foundation
WRA-85-17	FfQm-94*	Historic wagon bridge
WRA-85-17	FfQm-95*	Historic cabin
WRA-85-17	FfQm-96*	Historic structural remains

Table 9 continued

Project Number	Borden Number	Site Type
Jasper National Park (continued)		
WRA-85-17	FfQm-97*	Historic bridge foundations
WRA-85-17	FfQm-98*	Historic refuse dump
WRA-85-17	FfQm-99*	Historic-undetermined
WRA-85-17	FfQm-100*	Historic cellar and dump
WRA-85-17	FfQm-101*	Historic structural remains
WRA-85-17	FfQm-102*	Prehistoric undetermined
WRA-85-17	FfQm-103*	Historic structures
WRA-85-17	FfQm-104*	Historic depression/activity area
WRA-85-17	FfQm-105*	Historic lean-to
WRA-85-17	FfQm-106*	Historic cabin remains
WRA-85-17	FfQm-107*	Historic log platform
WRA-85-17	FfQm-108*	Historic depressions
WRA-85-17	FfQm-109*	Historic lean-to
WRA-85-17	FfQm-110*	Historic camp
WRA-85-17	FfQm-111*	Prehistoric-undetermined
WRA-85-17	FfQm-112*	Historic dump
WRA-85-17	FfQm-113*	Historic logging activity area
WRA-85-17	FfQm-114*	Historic camp
WRA-85-17	FfQm-115*	Prehistoric multiple activity locus
WRA-85-17	FfQm-116*	Historic cabin
WRA-85-17	FfQm-117*	Historic communications system
WRA-85-17	FfQm-118*	Prehistoric isolated surface find
WRA-85-17	FfQm-119*	Historic crib burial
WRA-85-17	FfQm-120*	Historic hatchery water intake
WRA-85-17	FfQm-121*	Historic-undetermined
WRA-85-17	FfQm-122*	Prehistoric-undetermined
WRA-85-17	FfQm-124*	Prehistoric-unidentified
WRA-85-17	FfQm-125*	Historic refuse/Prehistoric-unidentified
WRA-85-17	FfQm-126*	Historic refuse
WRA-85-17	FfQm-127*	Historic dump
WRA-85-17	FfQm-128*	Historic homestead
WRA-85-17	FfQm-129*	Historic refuse/Prehistoric-undetermined
WRA-85-17	FfQm-130*	Historic refuse pits
WRA-85-17	FfQm-131*	Historic dump
WRA-85-17	FfQm-132*	Historic dump
WRA-85-17	FfQm-133*	Historic dump
WRA-85-17	FfQm-134*	Historic fence remains
WRA-85-17	FfQm-135*	Historic survey cairn
WRA-85-17	FfQm-136*	Historic survey monument
WRA-85-17	FfQn-1*	Historic water supply stream splitter
WRA-85-11	FfQk-7*	Prehistoric isolated find
WRA-85-8	FgQl-1	Historic fur trade post
WRA-85-17	FgQm-63*	Prehistoric isolated find
WRA-85-17	FgQm-64*	Historic dump
WRA-85-17	FgQm-65*	Historic dump
WRA-85-17	FgQm-68*	Historic dump

Table 9 continued

Project Number	Borden Number	Site Type
Jasper National Park (continued)		
WRA-85-17	FgQm-69*	Historic-undetermined
WRA-85-17	FgQm-70*	Prehistoric limited activity locus
WRA-85-17	FgQm-71*	Prehistoric quarry
WRA-85-11	FhQl-29*	Prehistoric limited activity locus

ARCHAEOLOGICAL INVESTIGATIONS IN THE GRANDE PRAIRIE REGION OF NORTHWESTERN ALBERTA, 1985

By
Martin Magne
Archaeological Survey of Alberta

INTRODUCTION

Archaeological research in the northwest region of Alberta during the 1985 season was largely aimed at providing information which could serve to focus investigations in future years. To meet this aim, three kinds of research were undertaken: 1) documentation of private artifact collections; 2) survey of selected areas along the Wapiti and Smoky rivers; and, 3) test excavations at a selected site.

The Grande Prairie region (Figure 62) was chosen because of its potential to yield information on Paleo-Indian occupations in this part of the province and because of the known presence of Paleo-Indian projectile points in local artifact collections (Wormington and Forbis 1965). Also, the region contains extensive sand dune environments which, by their nature, should yield buried prehistoric sites. Given that the region is largely cultivated, the sand dune areas along the Wapiti and Smoky rivers offer perhaps the best opportunity for the discovery of undisturbed archaeological sites.

PRIVATE COLLECTIONS RESEARCH

A major part of the 1985 season was devoted to documenting the contents of artifact collections that are held by museums and private individuals in the Grande Prairie area. This program was designed to provide a permanent photographic record of the collections, to obtain information on collecting localities, and to document the range of Paleo-Indian projectile point types found in the area.

It soon became apparent that local interest in prehistoric archaeology is very high. No major problems were encountered in obtaining access to collections, and talking to collectors soon resulted

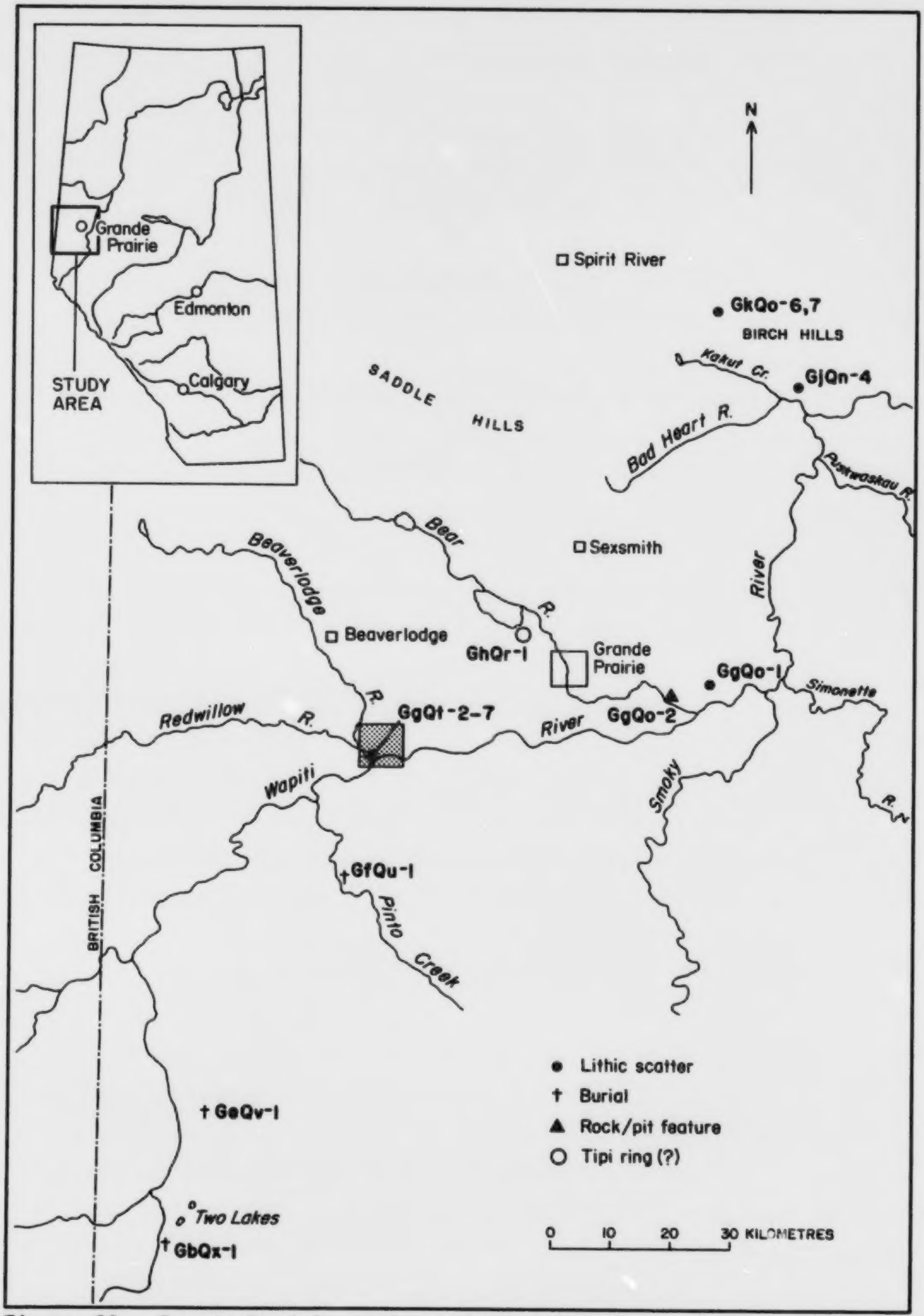

Grande Prairie
Edmonton
Calgary
STUDY AREA
N
Spirit River
GkQo-6,7
BIRCH HILLS
Kakut Cr.
GjQn-4
SADDLE HILLS
Bad Heart R.
Puskwaskau R.
Bear R.
Sexsmith
River
Beaverlodge R.
Beaverlodge
GhQr-1
Grande Prairie
GgQo-1
Simonette R.
GgQt-2-7
Redwillow R.
River
GgQo-2
Smoky
Wapiti
GfQu-1
Pinto Creek
BRITISH COLUMBIA
● Lithic scatter
† Burial
▲ Rock/pit feature
○ Tipi ring (?)
† GeQv-1
Two Lakes
† GbQx-1
0 10 20 30 KILOMETRES

Figure 62. Grande Prairie region, showing locations of sites recorded in 1985.

in a "snowball effect", where one person would reveal the names of two or three others who maintained collections. By and large, the collectors in the area are aware of the fragility of archaeological sites, collect only on their own land, and do not damage intact sites.

A total of 38 individual collectors and four local museums were contacted, producing a photographic record of some 500 artifacts from 45 separate collections. Although it was not always possible to identify the locations from which artifacts were collected since some collections have changed hands, 54 separate collection localities could be plotted to the nearest quarter section. All of the collections have been obtained from cultivated fields and grazing leases. At this stage of the research, only a few of these localities have been verified in the field.

Paleo-Indian projectile points, at least easily recognizable types such as Alberta, Scottsbluff, and Eden, are fairly common (Figures 63, 64). Also present are a number of specimens of a broad, basally thinned and contracting base point, which could be typed as "Browns Valley" or "Frederick" (Figures 65, 66). Two similar specimens from the Peace River area are illustrated in Wormington and Forbis (1965:177). One collection contains what appears to be a resharpened Clovis or Plainview point (Figure 67). The resharpening on this specimen is very clear, since it removed some kind of residue that adheres to the face of the point.

In sum, the collections documentation programme was very successful. A number of local contacts were established, a wide range of Paleo-Indian projectile points have been photographed, and many potential site locations have been plotted. An interesting result is that Paleo-Indian point finds appear to be concentrated in two areas, near La Glace Lake and near the town of Goodfare. It is hoped that field inspection of these areas in the future will result in the discovery of an intact Paleo-Indian site.

ARCHAEOLOGICAL SURVEY

QUADRAT SURVEY

A random sampling design was implemented along the Wapiti and Smoky rivers to assess the feasibility of systematic random sampling designs in

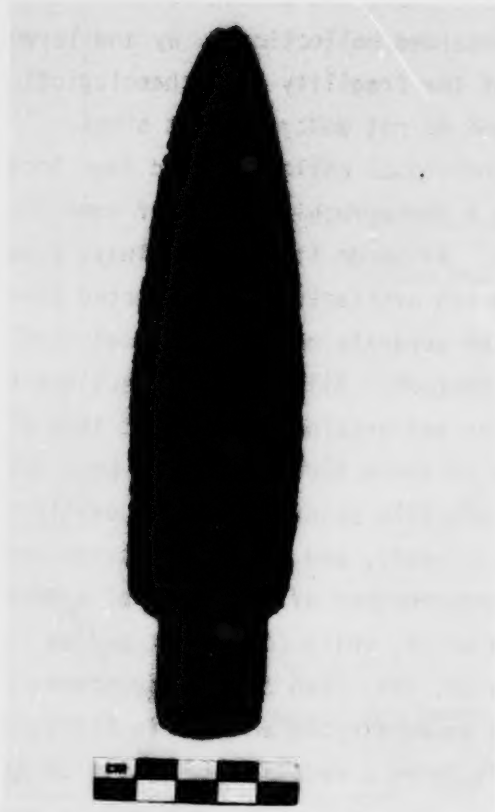


Figure 63. Scottsbluff point from private collection.

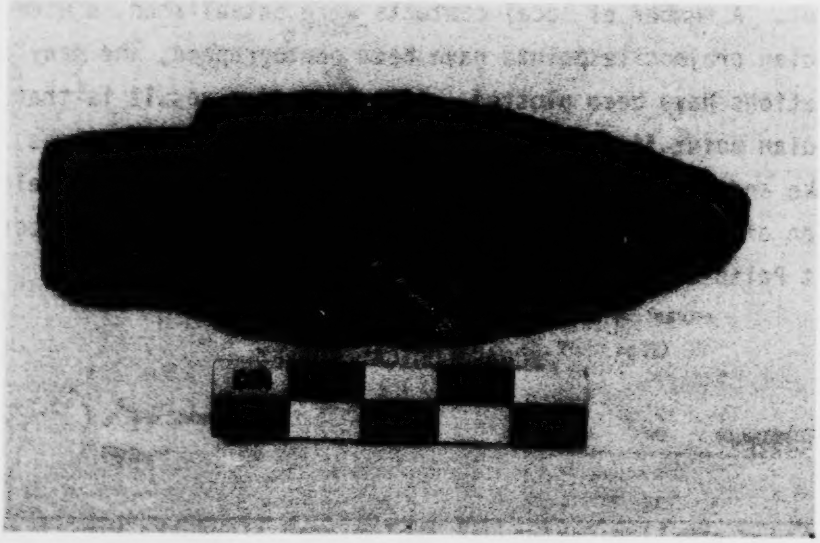


Figure 64. Alberta point from private collection.

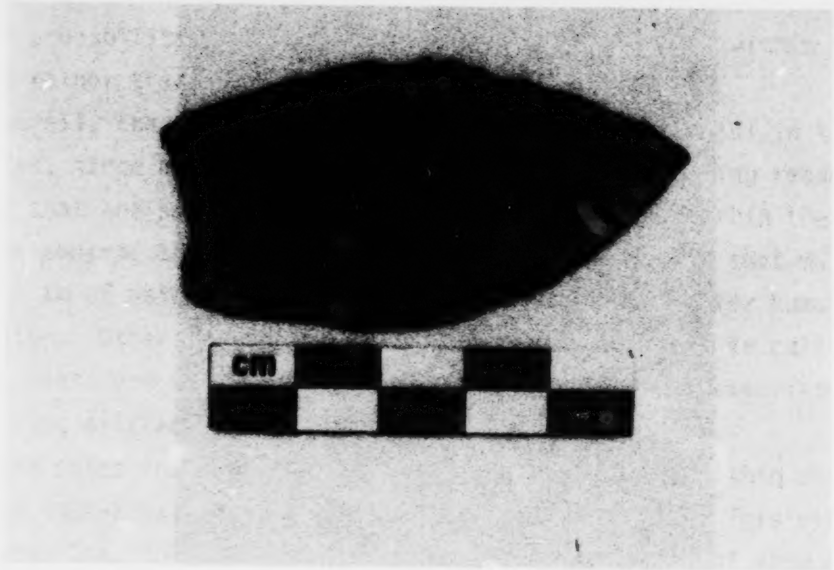


Figure 65. Browns Valley or Frederick point from private collection.

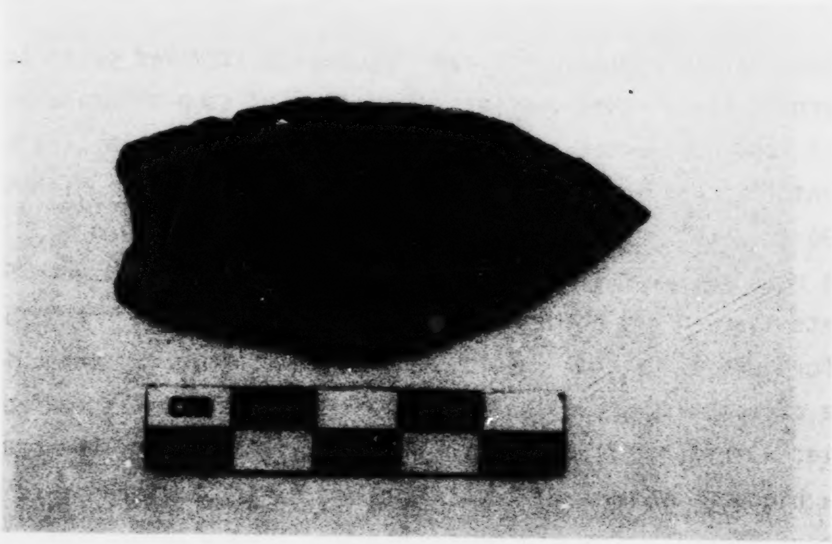


Figure 66. Browns Valley or Frederick point from private collection.

Figure 67. Resharpened Clovis or Plainview point from private collection.

the Grande Prairie region. The sampling design involved outlining a 1 km radius around major river confluences, including some separate high points of land just outside the 1 km area. Eight such sampling blocks were identified and divided into 250 x 250 m quadrats, of which there were 1196 in total. Thirty of these were actually surveyed.

The relatively small quadrat size, as opposed to the large 500 x 500 m quadrats used in the Peace River - Site C surveys (Spurling 1980), was chosen for several reasons. First, the size more closely approximates the size of most archaeological sites, reducing the statistical problems associated with cluster sampling (Nance 1984). Secondly, the small size allows a higher frequency of quadrats to be surveyed, leading to smaller confidence intervals than estimates based on fewer, larger quadrats. Finally, quadrats of this size are much easier to survey with small, inexperienced field crews. There are, of course, associated problems.

Access time to individual sampling units is somewhat greater, and there is a greater chance that the entire quadrat will contain low potential terrain than is the case with a larger unit. Furthermore, there is a greater probability that sites will occur only partially within the quadrat rather than entirely within it.

Overall, the quadrat survey program was not successful in locating new sites, since only two sites were found. The overriding reason for this is that the sampling frame was much too narrow. Within the sampling universe chosen, the physiography of the terrain is such that most areas within 1 km of major confluences are steep and unsuited for human habitation. Other factors include the presence of crops in cultivated fields, dense undergrowth in forested areas, and crew inexperience in recognizing artifacts in shovel tests.

Both sites found in quadrats (GjQn-4, GgQt-2) are lithic scatters, and only GgQt-2 has any research potential (Figure 68). This site is a very large (ca. 200 x 100 m) lithic scatter on a series of sand dunes of the Wapiti River, just east of the Redwillow River confluence. Two chert corner notched points were found on the surface, and several kinds of

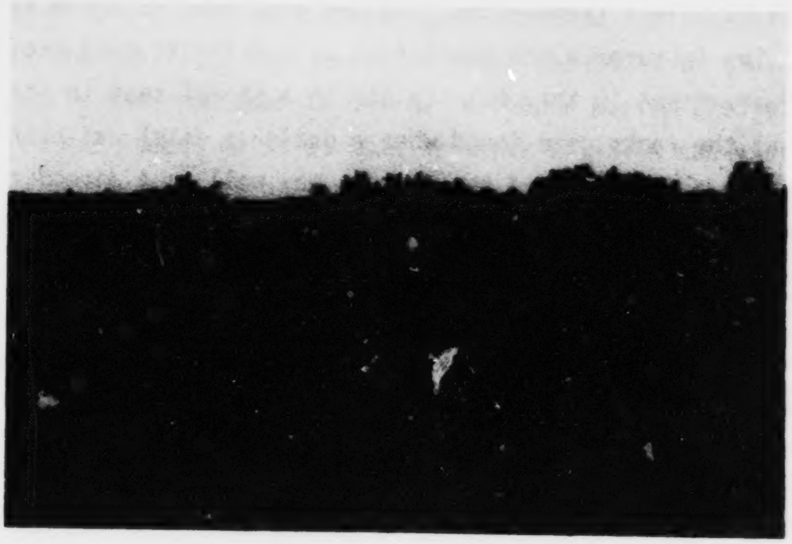


Figure 68. GgQt-2 site area, view to northwest from east end of site.

lithic raw materials, including obsidian, were present. This site has been subjected to local collecting for many years, and no attempt was made to systematically collect the surface materials. Test excavations conducted at GgQt-2 are discussed below.

JUDGEMENTAL SURVEY

Judgemental survey in the Grande Prairie region took three forms: 1) following up on site leads provided by local people; 2) investigation of the area near GgQt-2; and, 3) recording burial locations known to Stan Clarke, Chief Ranger of the Alberta Forest Service station in Grovedale. Mr. Clarke was able to direct the field crew to three separate historic burial sites known in the area southwest of Grande Prairie (see Figure 62). GfQu-2 contains at least four individual burials. GeQv-1 is an isolated burial, perhaps associated with a nearby Metis settlement. GbQx-1 is said to be the resting place of an early trapper. Several more burial locations are known in this general area, but these have yet to be visited and recorded.

Site leads from local people were responsible for the recording of 10 sites; the most interesting of these are GhQr-1 and GgQo-2. GhQr-1 is a possible buried tipi ring northwest of Grande Prairie. The feature consists of 11 fairly large rocks in a 3/4 ring that is 3.2 m in diameter. The feature is not identified as a definite ring because no artifacts were found in the vicinity nor in a shovel test in its centre; in addition, the rocks were found when a drainage ditch was being excavated with a backhoe, and the feature may well be a direct result of that activity. Furthermore, if the feature is an actual tipi ring, it would be the northernmost known record of such cultural features.

GgQo-2 is located in a sand dune environment on the north side of the Wapiti River east of the Bear River and was investigated at the request of a local lease holder. The site is a small scatter of cobbles in a 1 x 1 m area, and a quartzite biface was located nearby. Shovel testing of the south end of the feature revealed a pit outline 50 cm deep by 45 cm wide. The pit fill is sand only slightly darker than the principal matrix, with a few small granite fragments and a piece of unburned wood or root. No artifacts or bones were recovered and the function of the feature is unknown.

Sites GgQt-3, 4, 5, 6, and 7 (Figure 69) were found by examining sand dune areas east of GgQt-2. These are all lithic scatters with high surface visibility. This high density of sites indicates that the sand dune areas along the Wapiti River were intensively used in prehistoric times, and more research is planned for sand dune environments in the 1986 field season.

TEST EXCAVATIONS AT GgQt-2

Most of the dune area at GgQt-2 has stabilized, but the east end of the site contained an area of lithic artifact concentration that appeared to result from soil deflation (Figure 70). Six 1 x 1 m units were placed in this area of the site in the hopes of revealing buried and stratified soil horizons and dateable and/or diagnostic archaeological materials (Figures 71, 72, 73). A buried soil horizon was found (Figures 72, 74) but no stratification or diagnostic materials were evident. The soil horizon appears to be recent and dips sharply to the east, which indicates that aeolian deflation is shifting the dune slowly in this direction. A section 3.5 m deep was cleaned on the north face of the dune, but no additional soil strata were revealed. All artifacts recovered are debitage, and quartzite comprises 98.4% of the material by weight, while the remainder is chert. A deeply buried prehistoric occupation may indeed exist at this or other sites in the vicinity; however, considerable effort may be required to find such evidence.

SUMMARY

In large part, the 1985 season was directed at familiarizing the writer with the geography and archaeological character of northwestern Alberta, with a focus on the Grande Prairie region. Many local collections were documented, and plans have been made to investigate source areas of Paleo-Indian projectile points in the region and to continue research in the extensive sand dune areas along the Wapiti River.

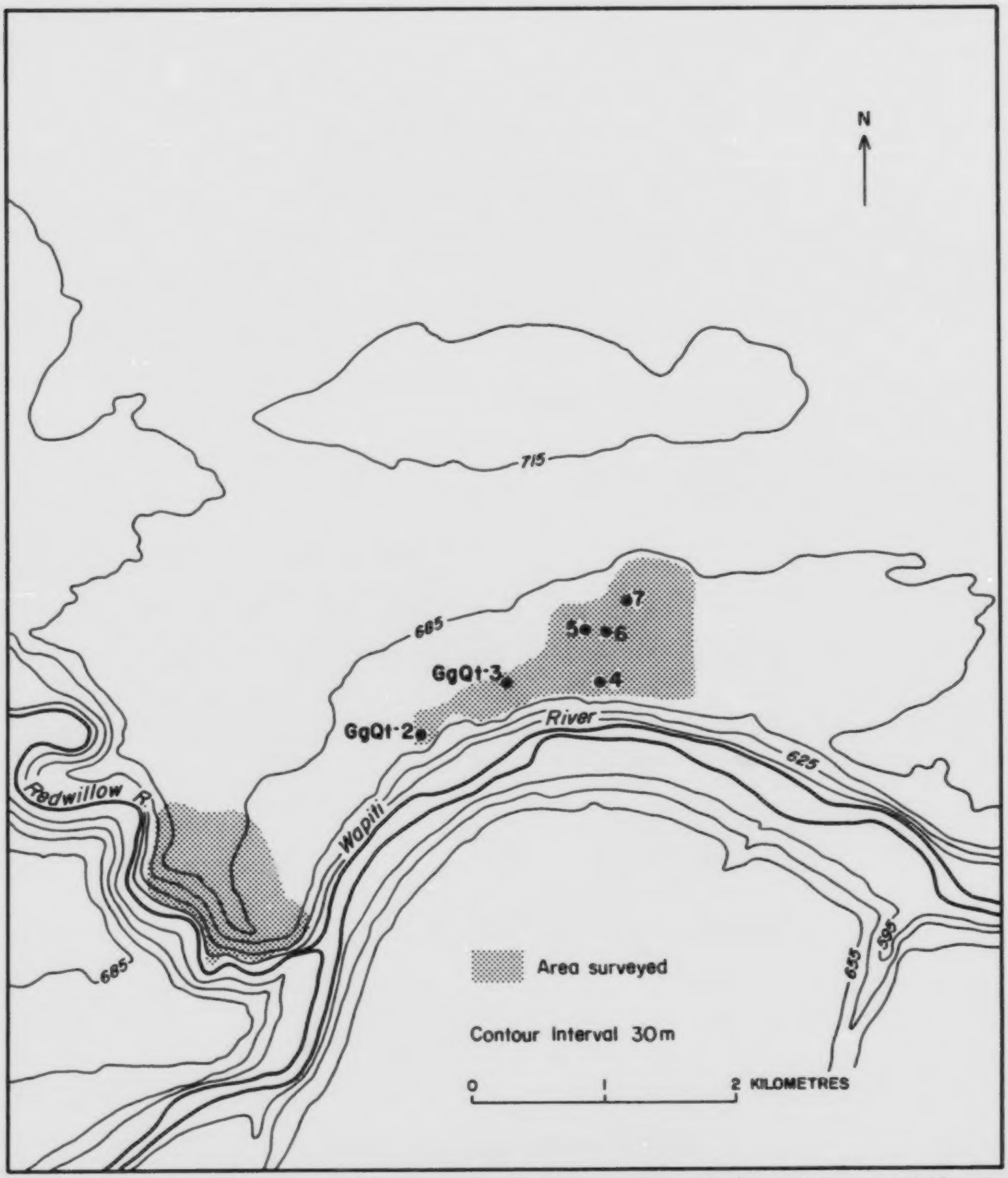

N
715
685
625
685
655
595
GgQt-2
GgQt-3
4
5
6
7
River
Wapiti
Redwillow R.
▨ Area surveyed
Contour interval 30m
0
1
2 KILOMETRES

Figure 69. Locations of sites GgQt-2 to 7. Map is keyed to shaded area in Figure 62.

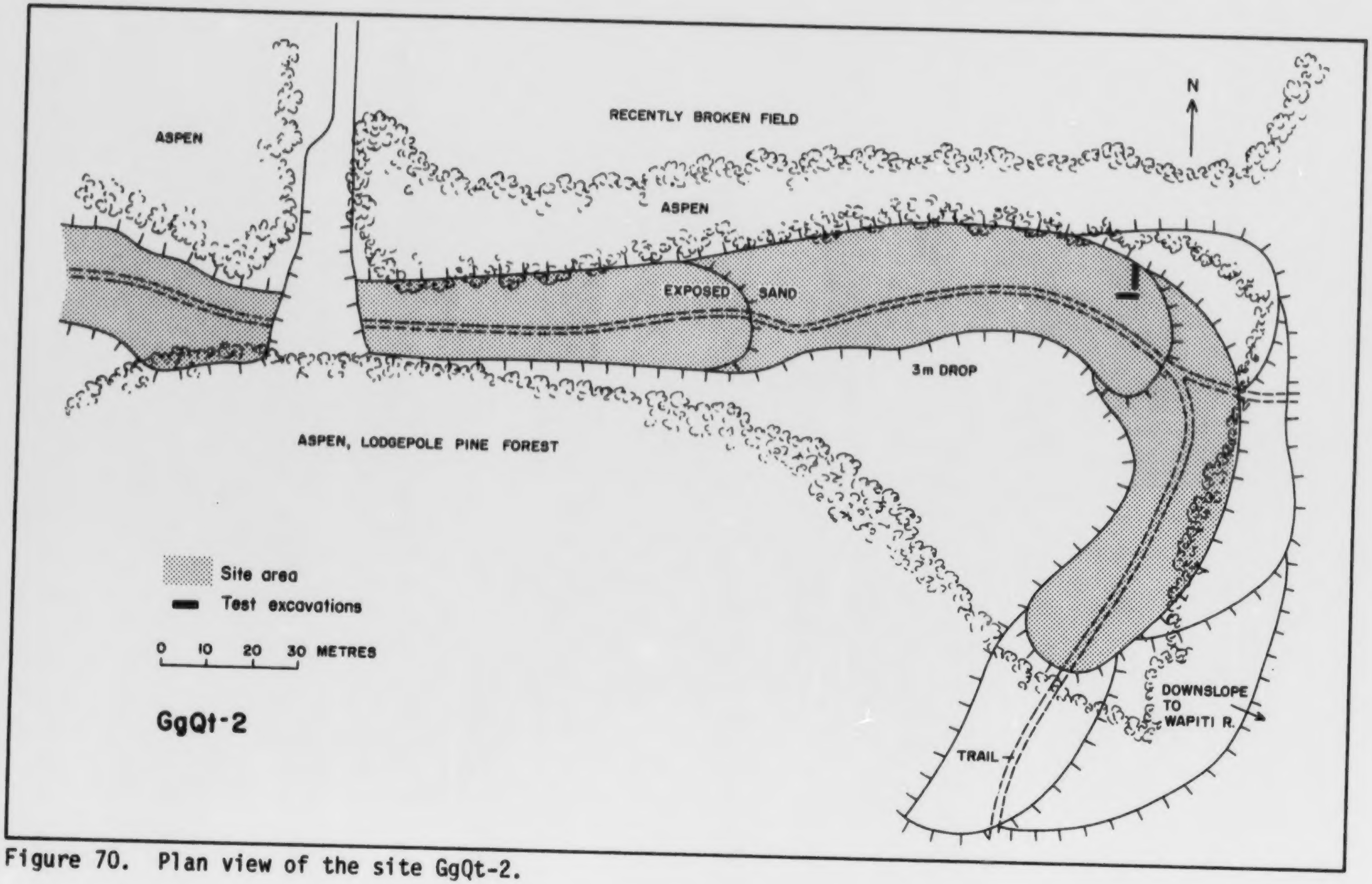

N
RECENTLY BROKEN FIELD
ASPEN
ASPEN
EXPOSED SAND
3m DROP
ASPEN, LODGEPOLE PINE FOREST
Site area
Test excavations
0 10 20 30 METRES
GgQt-2
DOWNSLOPE TO WAPITI R.
TRAIL

Figure 70. Plan view of the site GgQt-2.

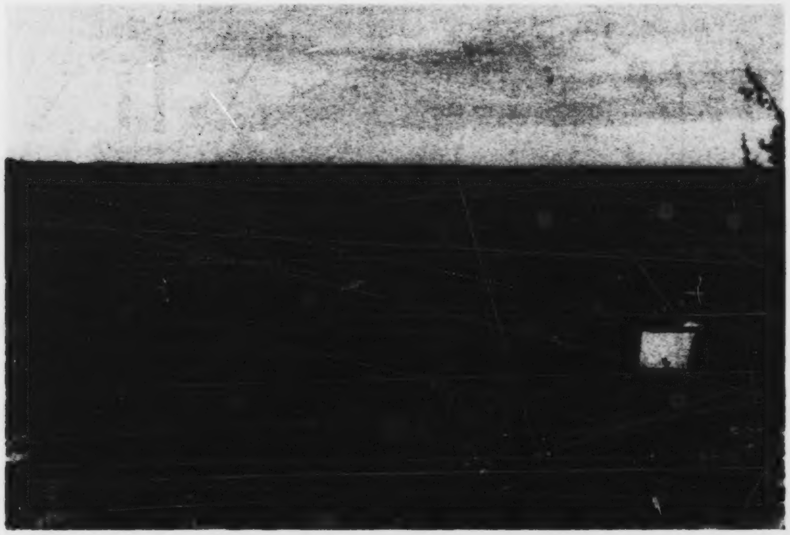


Figure 71. Test excavation area at GgQt-2; view to east overlooking the Wapiti River.

Figure 72. Excavation units at GgQt-2 showing sharply dipping soil horizon in north wall of units in foreground.

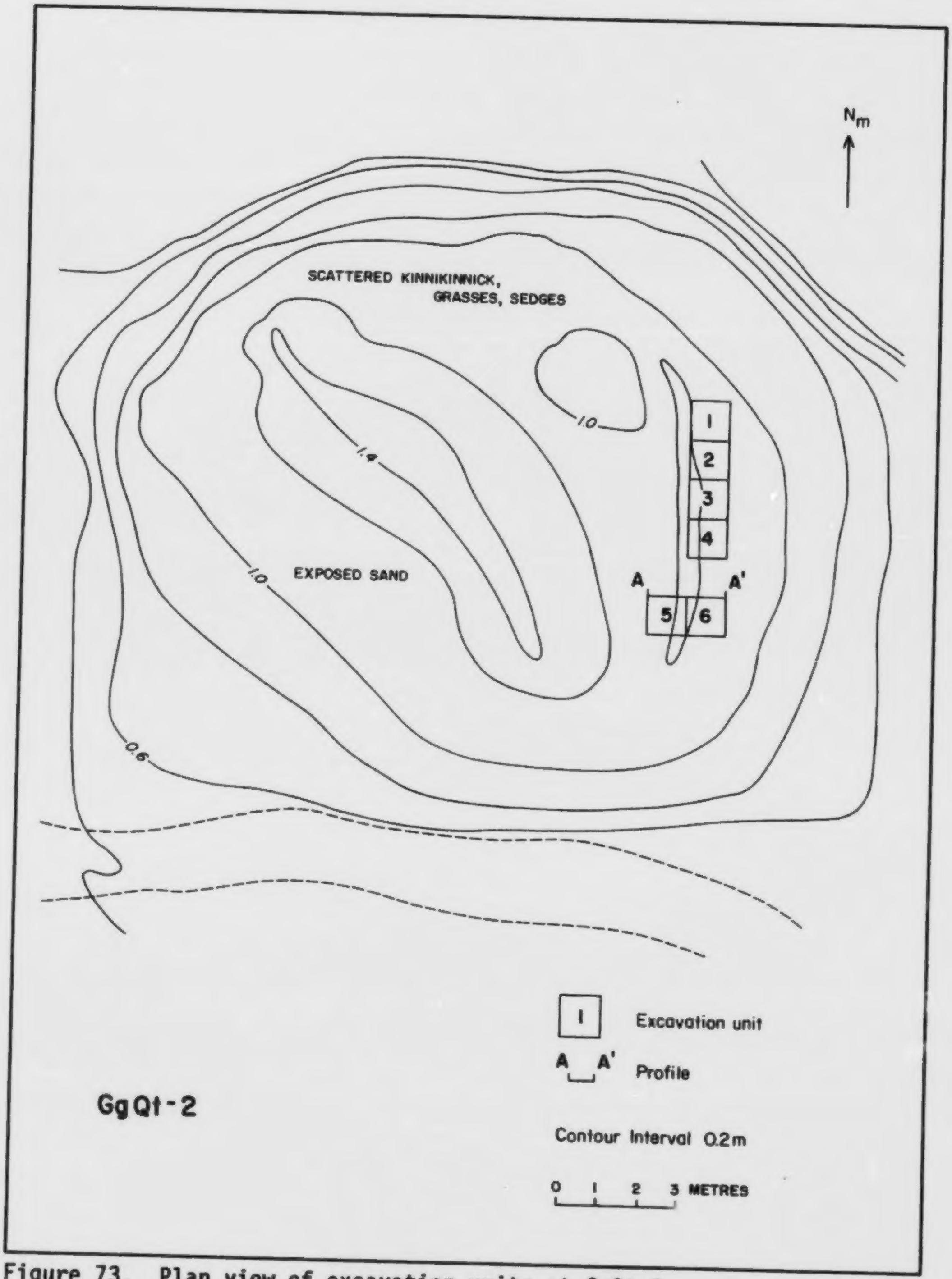

Nm
SCATTERED KINNIKINNICK,
GRASSES, SEDGES
1.0
1.4
1.0
EXPOSED SAND
0.6
1
2
3
4
A
A'
5
6
1
Excavation unit
A A'
Profile
GgQt-2
Contour Interval 0.2m
0 1 2 3 METRES

Figure 73. Plan view of excavation units at GgQt-2.

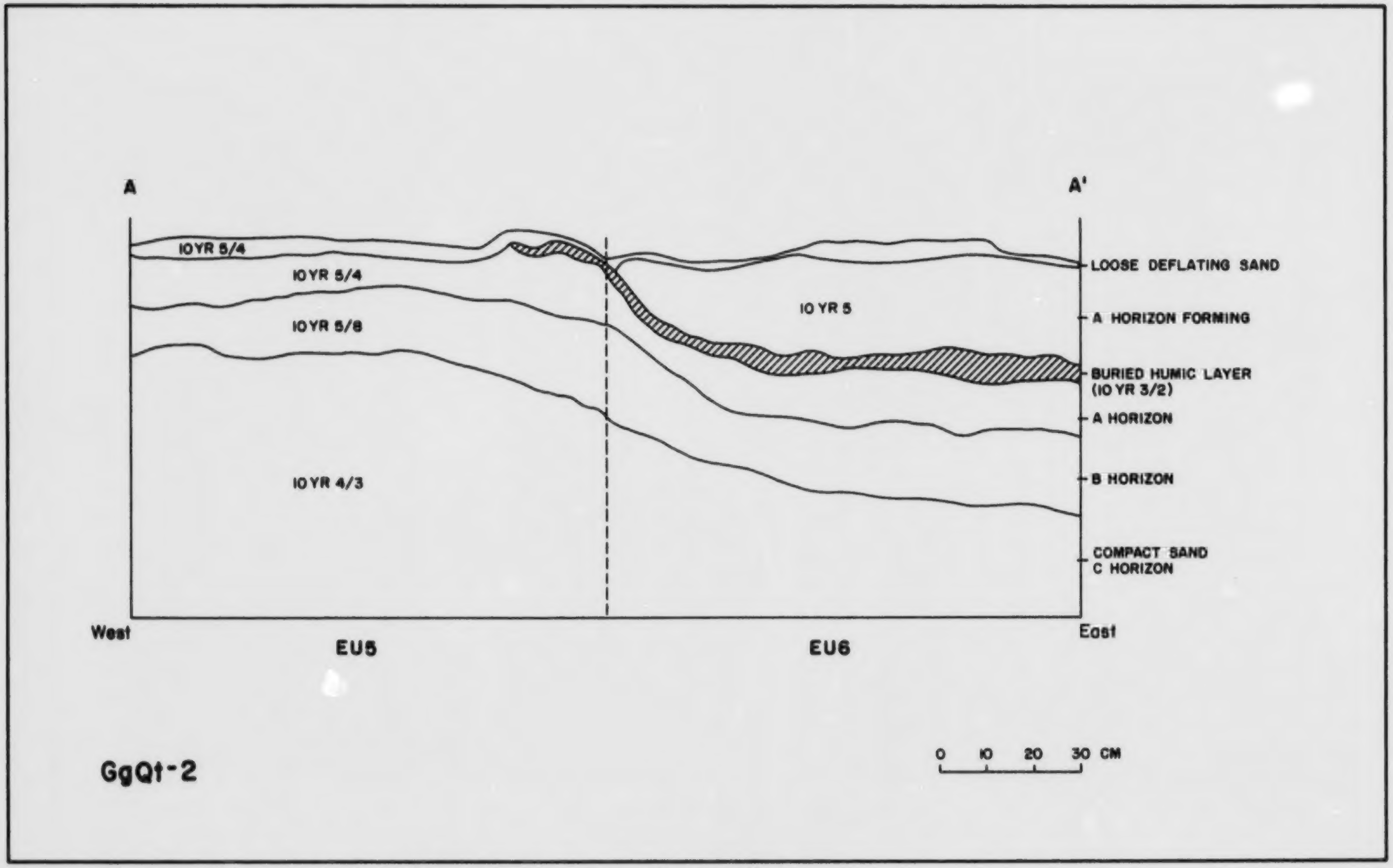

A
A'
IOYR 5/4
IOYR 5/4
IOYR 5/8
IOYR 4/3
IO YR 5
LOOSE DEFLATING SAND
A HORIZON FORMING
BURIED HUMIC LAYER (IO YR 3/2)
A HORIZON
B HORIZON
COMPACT SAND C HORIZON
West
East
EU5
EU6
GgQt-2
0 IO 20 30 CM

Figure 74. Profile of north walls of units 5 and 6 at GgQt-2.

ACKNOWLEDGEMENTS

I would like to thank the many residents of the Grande Prairie area who allowed us to document their collections. The field crew included Tim Gartner, Darren Lesperance, and Michael Stefureak. David Laing and Rebecca Murray provided additional assistance. The historic burials were located with the help of Pete McCullough.

RESEARCH NOTES

The Archaeological Survey of Alberta is pleased to incorporate a new section in the format for its annual review of Alberta Archaeology. "Research Notes" are intended to convey information useful to practising professionals in Alberta in those cases where an entire article is not warranted. Suitable topics would include descriptions of unique artifacts, preliminary information on important sites, radiocarbon dates of some specific significance, and so forth. Contributions may include up to two figures, and may range in size from one paragraph to three pages (with a line space of one and one half spaces) of text. Submissions should be directed to the Head of the Research Section. Contributions for this year were compiled by Bruce Ball.

Jack Ives

A First Millenium B.C. Smudge Pit from Eaglenest Lake, Birch Mountains

By
John W. Ives
Archaeological Survey of Alberta

Apart from unusually favourable depositional contexts, such as those at Peace Point (IgPc-2), features have been notoriously rare at boreal forest sites in northern Alberta. Since it will be some time before final results are available for excavations at the Satsi Site (HkPb-1) on Eaglenest Lake in the Birch Mountains, it is desirable to provide a preliminary report on a particularly well defined feature discovered at this site (see also Ives 1982).

This feature (#1) occurred in the west central area of unit 39 (a 1 x 1 m unit) in excavation Block B, on a ridge at the western end of the Satsi site (Figure 75). The feature became clearly visible once excavation had proceeded into the eluvial horizon of the brunisolic soil present on this portion of the site. It was roughly circular in shape. The maximum north-south dimension was 28 cm, while the maximum east-west dimension was 31 cm; the greatest width of the feature was 40 cm. The eastern edge of the feature was just 10 cm from a large rock, some 50 cm in length. No other rocks were involved in the feature.

Excavation continued by means of sectioning the feature. It was divided approximately in half by a central east-west line; the contents of the south portion of the feature were sampled and excavated to the base of the disturbance. A profile of the east-west section was then drawn, after which the north half of the feature was sampled and excavated. The basin remaining from this excavation had a maximum depth of 13.5 cm; the total depth of the feature from the existing ground surface was 28 cm. The north wall of the pit was discoloured (Figure 76). The north and west walls were steep to vertical, whereas the south and east walls were shallow and sloping.

Apart from the sandy matrix of the fill, organic materials dominated the contents of the feature. These were comprised of charcoal fragments, charred twigs, and small, charred spruce cones. Charcoal fragments were selected for radiometric dating and these yielded a determination of

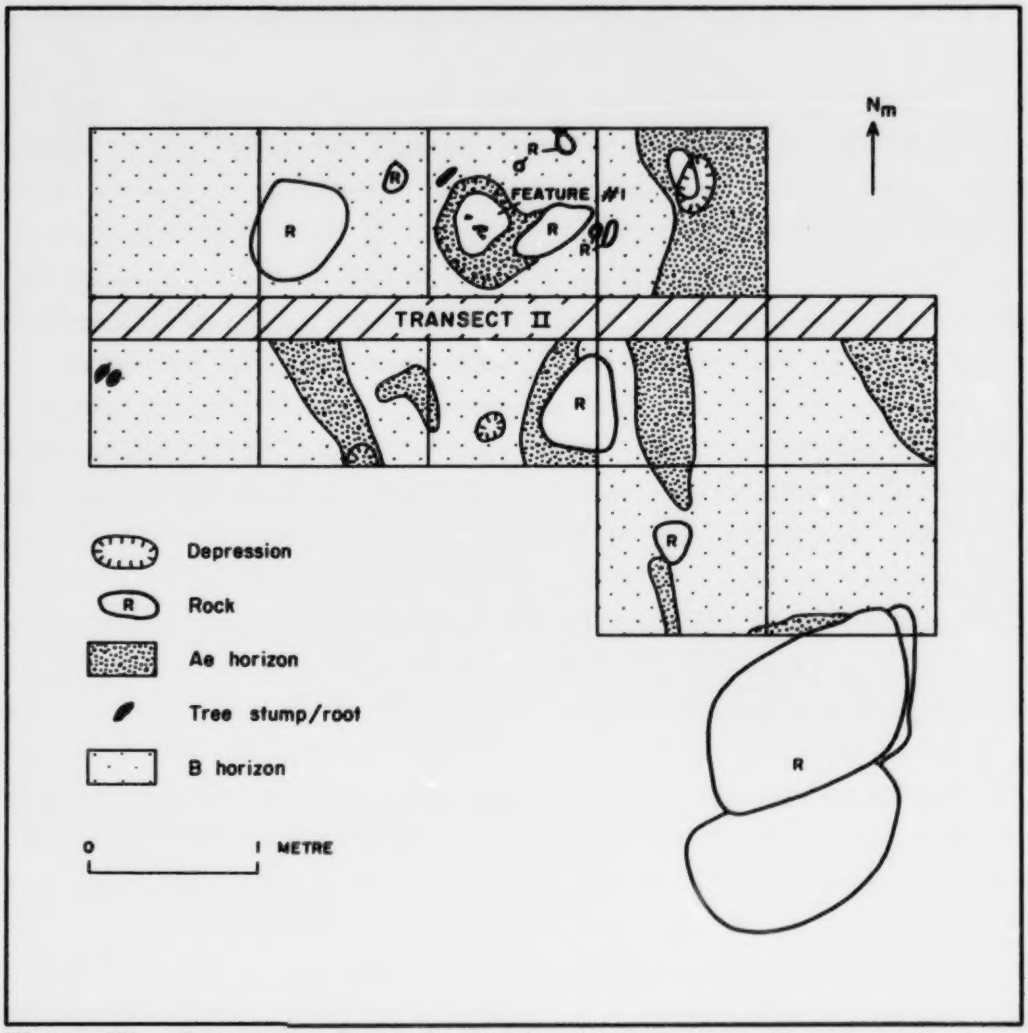

Nm
FEATURE #1
R
TRANSECT II
Depression
Rock
Ae horizon
Tree stump/root
B horizon
0
1 METRE

Figure 75. Excavation Block B, within which feature #1 occurred.

Figure 76. The basin remaining from the excavation of feature #1. Some charring can still be observed along the more vertical north wall (the trowel points to magnetic north).

2795±85 radiocarbon years before present (S-2174). I had presumed the feature to be relatively recent during excavation; however, it is clearly more ancient.

During excavation, I also harboured some doubts about the cultural origin of such a feature. Some small charred cones had the appearance of being green and closed at the time they were burned. This seemed slightly unusual, and one could not help but notice that squirrels (Tamiasciurus hudsonicus) made abundant use of green black spruce cones for food during July and August. These are carried to ground nests, where they are consumed, leaving immense quantities of cone remnants. Squirrels burrow in and around these deposits, near the ground surface.

I dismantled parts of one large squirrel's nest near our camp at the Satsi site, and made observations on other nests encountered in the Eaglenest Lake area. In doing so, I discovered that: (1) squirrel's nests tended to be large (up to 3-4 m in width), with a reticulate pattern of burrows and depressions; (2) burrowing did not commonly penetrate the mineral soil surface; (3) penetration of the mineral soil resulted in shallow pits, with gently sloping sides. These characteristics do not match those recorded for the basin of feature #1.

Subsequent to leaving the field, I have been able to observe photographs of ethnographic Chilcotin features from central British Columbia. Among these were smudge pits used for smoking hides. The Chilcotin placed hides over wooden frames, enclosing small pits which contained smouldering fires (Alexander et al. 1985:93). Burnard-Hogarth (1984:64) has reported that these pits are usually 45 cm in diameter and 40 cm in depth. The example she shows is steep-sided (ibid.:65, Figure 7). Sides of smudge pits were sometimes discoloured. Alexander et al. (ibid.) found the Chilcotin smudge pits to be in general agreement with Teit's (1900:185) account for the same features among the Thompson Indians. There, a mixture of broken fir bark and dry yellow pine cones was considered the best fuel.

Although the Satsi feature is slightly smaller than the Chilcotin examples, it conforms well to the general pattern. The Satsi feature does have the appearance of a deliberately excavated pit, at least half of which had steep to vertical sides. Sides of the pit were discoloured. The fuels used, including small wood fragments, twigs and cones, could certainly be used to create a smouldering fire. High heats of combustion obviously did not obtain and abundant organic remains were left.

I conclude, therefore, that the Satsi feature likely did function as a smudge pit, possibly for curing hides. It is difficult to know which, if any, artifacts from the surrounding Block B excavations might be associated with the feature. Four end scrapers did occur to the southeast of the feature, three of these being concentrated approximately 2.1 m from the centre of the feature. Finally, the original excavation of the feature itself would suggest use of the pit between roughly May and October, while the presence of green spruce cones is indicative of a mid-summer occupation.

A Radiocarbon Date from the Laidlaw Site, DlOu-7

By
John H. Brumley
Ethos Consultants Ltd.

In a recent article, I (1984) described and discussed the results of test excavations conducted at the Laidlaw site, located in the South Saskatchewan River valley, in southeastern Alberta. The major feature at the site consists of two stone alignments converging on a rectangular-shaped stone enclosure. Test excavations indicate that this rectangular stone structure represents the base of a stone wall which originally surrounded an excavated pit. The stone wall has collapsed inward, filling the pit. Other features include a stone mass interpreted as representing a collapsed stone hut, adjacent to the rectangular enclosure, and two nearby stone circles or tipi rings. One of these stone circles has an unusually large inside diameter. Text excavations yielded a very limited quantity of associated cultural material. This consisted of a few pieces of antelope bone from the excavated pit within the rectangular enclosure, and a few non-diagnostic stone items.

Data recovered from work at the site, in conjunction with detailed ethnographic accounts, clearly indicate that the main structure at Laidlaw is an antelope pit trap. A recently obtained radiocarbon date from a small bone sample recovered from within the pit structure produced an age of 3280±110 years B.P. (Beta 11952) The C-13/C-14 adjusted date is 3420±130 years B.P. There is no independent basis for evaluating the reliability of the date. Because of the very close ethnographic parallels exhibited by the Laidlaw site structure, a more recent (Late Prehistoric Period) date was expected. However, this is certainly not an adequate basis for rejecting the date and may simply reflect considerable cultural continuity through time in such subsistence strategies.

If accepted, the date from Laidlaw places use of the site into Reeves' (1973, 1985b) Early Middle Prehistoric Period. An examination of similarly dated archaeological materials (Vickers 1983; Brumley and Rushworth 1983) in Alberta indicates that the trap could be associated with the terminal end of the McKean or Oxbow Phases, or with the initial Pelican Lake Phase. Final resolution of the cultural associations of the antelope trap at Laidlaw must await further excavation at the site, and the recovery of diagnostic cultural items or additional dateable material.

Radiocarbon Dates on Pre-Mazama Ashfall Occupations in the Crowsnest Pass

By
Brian Ronaghan
Archaeological Survey of Alberta

In the summer of 1984, a series of prehistoric archaeological sites were mapped and tested in an area at the eastern end of the Crowsnest Pass (Ronaghan 1985). Two sites showed evidence of cultural occupations below distinct ash layers which are interpreted as Mazama Ash. Cultural materials included sparse amounts of lithics and bone. Samples of bone were submitted to the Radiocarbon and Tritium Laboratory at the Alberta Environmental Centre; the following dates were returned:

DjPn-47	6200±120 years B.P.	(AECV-108)
DjPn-90	6040±450 years B.P.	(AECV-112)

The date from DjPn-47 relates to an occupation located 90-100 cm below surface, immediately below the lowest ash layer (Ronaghan 1985:134). No diagnostic artifacts were recovered from this layer. The estimate from DjPn-90 is on material from 90-100 cm below surface, well below ash pockets. This date is associated with a projectile point specimen with deep corner notches, tanged shoulders, an expanding stem and a straight bifacially thinned base (see Ronaghan 1985:136, Figure 28f). These dates fall roughly in the projected range for Mazama ashfall, although somewhat too recent. The range of projectile point styles associated with the Early Middle Prehistoric Period in southern Alberta is not well appreciated.

Radiocarbon Dates from the Belly Burial Site (DhPj-69)

By
Bruce Ball
Archaeological Survey of Alberta

In 1982, human skeletal remains were discovered in a fossil shell deposit on the Belly River near Cardston. While a portion of the skeleton had been eroded out of its burial place, there remained undisturbed elements, anatomically correct, within the original burial itself. Dr. Terry Moore of the University of Lethbridge reported the discovery to the Archaeological Survey of Alberta, and a crew from the Survey was then dispatched to recover the skeletal remains.

The remains were found to be extremely fragmented and many of the elements were missing. The elements, or parts thereof, recovered include: the cranium, the mandible including all of the teeth, the right humerus, the right radius, the right ulna, the left third and right second metacarpals, three first phalanges, two second phalanges and three third phalanges, the left clavicle, parts of the sternum, eight large rib fragments plus many smaller rib pieces, numerous vertebral fragments, three innominate fragments, the left femur, the left tibia, right tibia, left fibula, right fibula, right tarsals, metatarsals and phalanges, and a portion of the right calcaneus. Measurements were possible on only eight elements and this was accomplished only after extensive reconstruction.

Artifacts collected from the talus below the burial included both lithics and bone. Figure 77 shows a reconstructed worked bone artifact fragment. The fragment appears to have been fashioned from the scapula of a large mammal, possibly bison, and displays evidence of being worked over most of the surfaces. The most obvious features are the drilled holes and series of evenly spaced notches along two of its edges. The function is not readily apparent. It has been suggested that it may have served as a bow string protector. It is equally possible that it may have served a more cosmetic or decorative role.

A total of seven lithic items were collected; all were found in the talus below the intact remains. The lithics included four flake

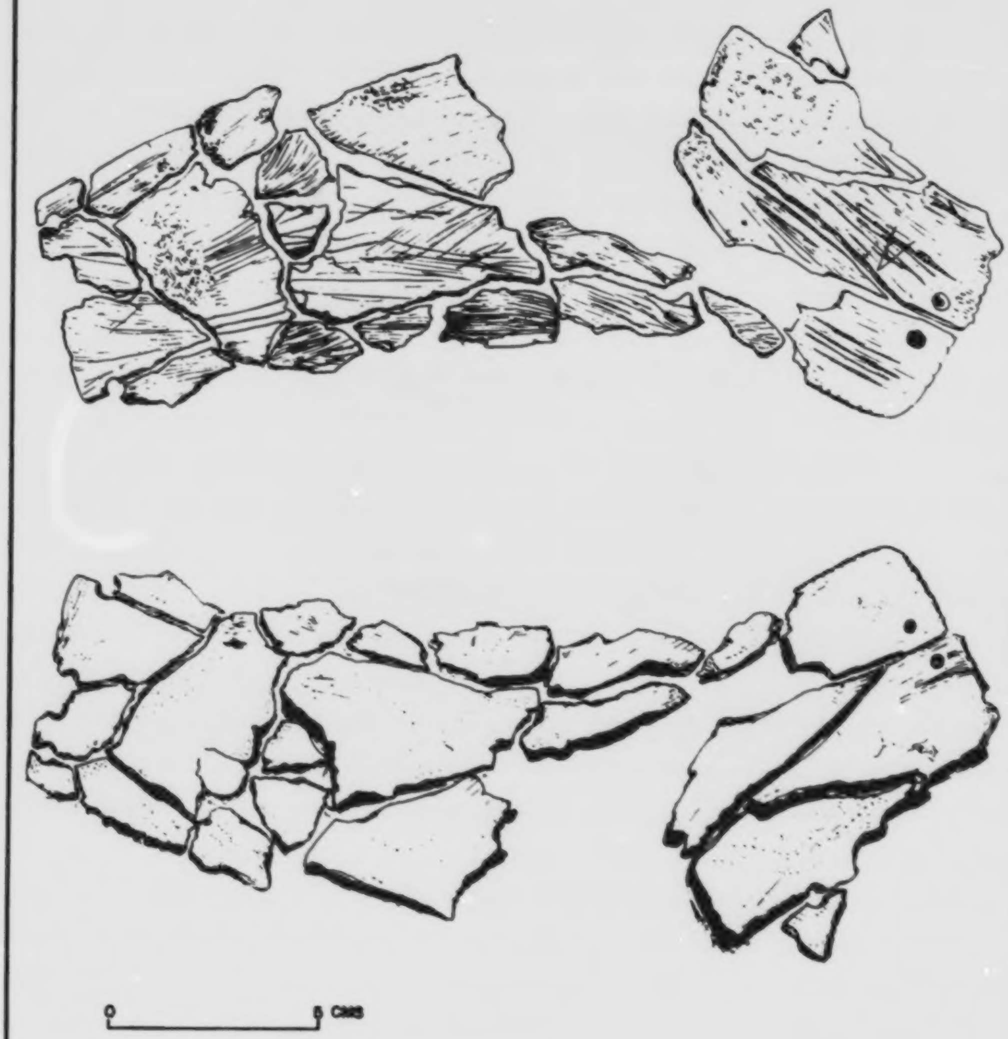


Figure 77. Drawings of both sides of reconstructed bone artifact recovered with skeletal remains from the Belly Burial site (DhPj-69).

Figure 78. Formed artifacts found in association with the Belly Burial (DhPj-69). Specimen (a) is morphologically similar to northern side notched types (Gruhn 1961; Holmer 1980). Specimen (b) is a perforator made of obsidian.

fragments, one blade fragment and one projectile point (Figure 78a) and one perforator (Figure 78b). Two of the flakes are chert and two are obsidian. The blade is made of chert and is translucent along its edges. A red substance, apparently ochre, was observed on the chert blade. The perforator (Figure 78b) is obsidian and the projectile point (Figure 78a) is siliceous siltstone. The perforator shows some evidence of use along the edges of the tip and indications of grinding along its lateral edges.

Morphologically, the projectile point (Figure 78a) is most similar to northern side notched types (Gruhn 1961; Holmer 1980). However, any further affinity between this point and the northern side notched types seems doomed, given the recent dates presented below.

Analysis of the skeletal remains indicates that the burial is that of a female who was approximately 157 cm in height and 35 years old. The bones show no evidence of disease, and indicate that the individual was apparently in good health at time of death.

Samples of the skeletal material were submitted for radiocarbon age determination to two laboratories: the Radiocarbon Acceleration Unit at Oxford University, and Beta Analytic Inc. The results obtained are as follows:

OxA - 384 370±75 years B.P.
OxA - 682 340±70 years B.P.

These dates may be combined to give the result of 355±50 years B.P.

Beta - 11902 4030±110 years B.P. C-13/C-14 adjusted age is
4120±120 years B.P.

It should be noted that these three samples were analyzed using the AMS technique.

The disagreement between the 340 to 370 year range and the 4030±110 years B.P. date is puzzling. In fact, it was the disagreement between the OxA - 384 result and the Beta - 11902 result which caused us to submit an additional sample to Oxford (i.e., OxA - 682); no acceptable explanations for the disparity were forthcoming. An additional bone sample was submitted to the Radiocarbon and Tritium Laboratory at the Alberta Environmental Centre. Unfortunately, only preliminary results are available at this time, indicating the sample to be younger than 500 years (D. Arnold, personal communication 1986). At this point, the fact that we have three estimates from two different labs all within the same range and one which is dramatically incongruous, suggests most convincingly that the true age of the burial is in the 340 to 370 year range.

If it can be accepted that the association between the burial and the projectile point is real, this underlines the caution which should be used in the use of projectile point styles to date archaeological sites, that is, that projectile point comparisons are not always reliable. While the projectile point cannot be associated unequivocally with the burial, the fact that both were recovered from the same site area infers contemporaneity. This apparent synchronism signifies the burial to be the oldest in southern Alberta. The results from the radiocarbon analyses show otherwise, that the burial and, by association, the artifacts, date to the early A.D. 1600s.

ABSTRACTS FOR 1984 AND 1985 PERMITS

We are happy to report that this section includes the abstracts for all permits issued in 1985. We thank all permit holders for their cooperation this year. This section also includes those abstracts for 1984 permits not published last year.

Gabriella Prager

84-5	Rod Heitzmann Fedirchuk McCullough & Associates Ltd. 304, 1725 - 10 Avenue S.W. Calgary, Alberta	Western Decalta (1977) Ltd. Diamond Valley Project gas pipelines

PROJECT TYPE: HRIA

LOCATION/SETTING: The Turner Valley region of Alberta

RESULTS: Two historical resource sites were identified (EePn-79, EdPn-46). EePn-79 has two components: a prehistoric artifact scatter and an industrial component, evidenced by six features and some industrial debris, relating to early oil and gas exploration in the region. EdPn-46 consists of some structural remains relating to the early ranching period.

SITE TYPES: Prehistoric artifact scatter, industrial, ranching

REPORT: Complete, entitled "Historical Resources Impact Assessment Western Decalta (1977) Limited Diamond Valley Project Gas Pipelines", by R.J. Heitzmann.

84-6	Rod Heitzmann Fedirchuk McCullough & Associates Ltd. 304, 1725 - 10 Avenue S.W. Calgary, Alberta	TransAlta Utilities Corp. High River - Black Diamond transmission line

PROJECT TYPE: HRIA

RESULTS: Two new sites were identified (EdPl-11 and EdPm-4).

SITE TYPES: Prehistoric campsites

REPORT: Complete, entitled "Historical Resources Impact Assessment TransAlta Utilities Corporation High River to Black Diamond 138kV Transmission Line 812L", by R.J. Heitzmann and G.J. Fedirchuk.

84-8	Shawn Haley Haley Charles Consulting 5111 Rundleview Rd. N.E. Calgary, Alberta	Alberta Transportation Turner Valley Ranches gravel pit

PROJECT TYPE: HRIA

RESULTS: Field studies resulted in the identification of no surviving historical resource sites within the boundaries of the gravel pit area.

REPORT: Complete, entitled "Final Report Historical Resources Impact Assessment Alberta Transportation Turner Valley Ranches Gravel Pit", by Shawn Haley.

84-19

Rod Heitzmann
Fedirchuk McCullough &
Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Federated Pipe Lines Ltd.
Fort Saskatchewan -
Namao pipeline

PROJECT TYPE: HRIA/mitigation at FkPh-26

LOCATION/SETTING: Between Fort Saskatchewan and Namao, central Alberta.

METHODOLOGY: The pipeline right-of-way was examined to locate and assess any historical resources sites. One of the sites found (FkPh-26) was subjected to mitigation in the form of surface collection and the excavation of 15 sq. m.

RESULTS: Nine prehistoric sites were located (FkPi-3 to 5, FkPh-23 to 28).

SITE TYPES: Prehistoric; FkPh-26 - campsite

REPORT: Complete, entitled "Historical Resources Impact Assessment Federated Pipe Lines Ltd. Fort Saskatchewan - Namao Tie In Pipeline", by R.J. Heitzmann.

84-21

Shawn Haley
Haley-Charles Consulting
5111 Rundleview Rd. N.E.
Calgary, Alberta

Alberta Transportation
Highway construction/
gravel pits

PROJECT TYPE: HRIA

LOCATION/SETTING: Various areas in southern and central Alberta

METHODOLOGY: Ten proposed highway rights-of-way and six gravel pits were examined. Site file searches and field studies were conducted.

RESULTS: Seventeen prehistoric and seven historic sites were inspected. Only two (EaPk-96, 97) were considered significant.

REPORT: Complete, entitled "Final Report Historical Resources Impact Assessment 1984 Highways Survey Programme", by Shawn Haley.

84-38	R.J. Heitzmann Fedirchuk McCullough & Associates Ltd. 304, 1725 - 10 Avenue S.W. Calgary, Alberta	County of Vulcan Little Bow River Crossing

PROJECT TYPE: Mitigation of sites EaPh-4 and 5

METHODOLOGY: At EaPh-4, 78 1x1 m units were excavated, while at EaPh-5, 2 1x1 m units were excavated to a depth of 50 cm.

RESULTS: Excavations at EaPh-4 yielded a wide range of lithic remains, including primary, secondary and retouch flakes, hammerstones, scrapers, and projectile points. In addition, ceramics, bone uprights, bone fragments and fire broken rock were recovered. Two occupation levels were identified.

Excavations at EaPh-5 yielded no lithic remains and faunal materials were confined to the upper 20 cm.

SITE TYPE: EaPh-4 - campsite

DATES: Based on projectile point typology, EaPh-4 is dated to the Late Prehistoric Period (A.D. 1000 - 1700).

REPORT: Complete, entitled "Historical Resources Mitigation Little Bow River Crossing EaPh-4 and EaPh-5", by G.J. Fedirchuk.

84-41	John Brumley Ethos Consultants Ltd. Group Box 20, Veinerville Medicine Hat, Alberta	Ocelot Industries Ltd. Grand Forks well sites/ pipelines

PROJECT TYPE: HRIA/mitigation

LOCATION/SETTING: In the Grand Forks area of south-central Alberta.

METHODOLOGY: From September 1983 to June 1984, 31 oil well sites and 11.8 km of pipeline rights-of-way were examined. One site, D10w-9, was subjected to mitigation in the form of five backhoe test pits up to 2.6 m deep.

RESULTS: Five new archaeological sites were recorded (D10v-8, 9, D10w-9 to 11). Well sites were relocated to avoid D10v-9 and D10w-10. Excavations at D10w-9 revealed that the cultural material was thinly dispersed and restricted to the upper 40 cm of deposits.

SITE TYPES: Stone circles, stone circles/cairns, buried campsite

REPORT: Complete, entitled "A Heritage Resources Impact Assessment of Proposed Wellsites and Pipeline Right-of-ways in the Grand Forks Area, Alberta", by John H. Brumley; report includes a general discussion on the historical resource potential of various locales within the study area.

84-45

R.J. Heitzmann
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Westcoast Petroleum Ltd. Crystal Field water pipeline/intake site

PROJECT TYPE: HRIA

LOCATION/SETTING: In west-central Alberta

RESULTS: One historical resource site was identified (FfPq-4).

SITE TYPE: Prehistoric campsite

REPORT: Complete, entitled "Historical Resources Impact Assessment Westcoast Petroleum Company Limited Crystal Field Water Supply Pipeline and Water Intake Site", by R.J. Heitzmann.

84-48

R.J. Heitzmann
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Westcoast Petroleum Co. Ltd. Crystal Field water intake site

PROJECT TYPE: Mitigation of FfPq-4 (the Tam-no-amna site)

LOCATION/SETTING: On a peninsula on the south shore of Buck Lake in west-central Alberta, in the Boreal-Cordilleran Transition zone.

RESULTS: Materials recovered from the site included side notched projectile points, scrapers, an assortment of retouched flakes, net sinkers, and pottery.

SITE TYPES: Prehistoric campsite

CULTURAL AFFILIATION: The artifact assemblage and associated lifestyle evident at this site are considered sufficiently unique and explicit to define a discrete phase: the Tam-no-amna Phase.

DATES: Late Prehistoric Period, based on projectile point typology.

REPORT: Complete, entitled "The Tam-no-amna Site (FfPq-4) a Late Prehistoric Site in the Boreal-Cordilleran Transition Zone of Alberta", by R.J. Heitzmann.

84-51	**John Brumley** **Ethos Consultants Ltd.** **Group Box 20, Veinerville** **Medicine Hat, Alberta**	**Corrida Oils Ltd.** **Murray Lake gas well sites**

PROJECT TYPE: HRIA/mitigation of DkOr-2, 3, DkOs-1

LOCATION/SETTING: Near Murray Lake, in southeastern Alberta.

METHODOLOGY: During the HRIA, 32 gas well sites were examined. Mitigation of the 3 sites found to be within development locations included the mapping of 4 stone circles, and the excavation of 40 1x1 m test pits.

RESULTS: The HRIA resulted in the recording of six archaeological sites (DkOr-2 to 5, DkOs-1 and 2). Mitigation resulted in the recovery of 22 cultural items.

SITE TYPES: Stone circles

REPORT: Complete, entitled "An Historical Resources Impact Assessment and Follow-up Mitigation Project near Murray Lake, Southeastern Alberta", by John H. Brumley and Barry J. Dau.

84-54	**Rod Heitzmann** **Fedirchuk McCullough & Associates Ltd.** **304, 1725 - 10 Avenue S.W.** **Calgary, Alberta**	**Nova, An Alberta Corporation** **Leming Lake Sales lateral and meter station**

PROJECT TYPE: HRIA

LOCATION/SETTING: In east-central Alberta

METHODOLOGY: The development area was examined to locate historical resource sites. The identified sites were recorded and photographed, and artifacts were collected.

RESULTS: Two historical resource sites were identified (GdOt-1 and 2).

SITE TYPES: Artifact scatters

REPORT: Complete, entitled "Historical Resources Impact Assessment Novacorp Pipelines Limited Leming Lake Sales Lateral and Meter Station", by R.J. Heitzmann.

84-80

John Brumley
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Kandex Resources and
Development Ltd.
Milk River well site

PROJECT TYPE: HRIA

LOCATION/SETTING: The project is located 12 km south of Milk River, Alberta.

RESULTS: One new archaeological site, DgPa-10, was recorded. Since part of this site was within the proposed well site, the latter was relocated in order to avoid all observed cultural features.

SITE TYPE: stone circles/cairns

REPORT: Complete, entitled "A Heritage Resource Impact Assessment of a Proposed Oil Wellsite Near Milk River, Alberta", by John H. Brumley.

84-92

Shawn Haley
Haley-Charles Consulting
5111 Rundleview Rd. N.E.
Calgary, Alberta

De Leuw Cather/Alberta
Housing Corp.
North-East Benchlands
subdivision

PROJECT TYPE: HRIA

LOCATION/SETTING: In Canmore, Alberta

METHODOLOGY: The HRIA consisted of a site file search and field investigations.

RESULTS: No historical resources sites were identified.

REPORT: Complete, entitled "Final Report Historical Resources Impact Assessment Area 4, North-East Benchlands, Canmore, Alberta", by Shawn D. Haley.

84-105	**John Brumley** **Ethos Consultants Ltd.** **Group Box 20, Veinerville** **Medicine Hat, Alberta**	**Petro-Canada Inc.** **Manyberries oil well sites**
PROJECT TYPE:	HRIA	
LOCATION/SETTING:	Approximately 15 km east of Manyberries, Alberta	
METHODOLOGY:	Three proposed well sites were examined. One stone circle at one of the recorded sites, DiOo-8, was plan mapped.	
RESULTS:	Three archaeological sites were recorded (DiOo-8, 9, 10). DiOo-10 was avoided by relocating the proposed well site.	
SITE TYPES:	Stone circles	
REPORT:	Complete, entitled "A Heritage Resources Impact Assessment of Three Proposed Oil Wellsites in the Manyberries Area, Alberta", by John H. Brumley.	

85-1

John Pollock
Settlement Surveys Ltd.
19 Addison Crescent
St. Albert, Alberta

Nova, An Alberta Corporation
Algar Lake lateral pipeline

PROJECT TYPE: HRIA and pipeline construction monitoring

LOCATION/SETTING: Near Fort McMurray; east side of Athabasca River.

METHODOLOGY: Mapping of surface features and monitoring of subsurface construction activities.

RESULTS: A number of historic features were mapped including two buildings, four building foundations and one cemetery, all part of HbPd-1 (House River Historic Site Complex). A small prehistoric archaeological site (HbPd-2) was located as a result of monitoring the right-of-way.

SITE TYPES: Historic site complex and Indian cemetery

REPORT: Complete, entitled "Historical Resources Impact Assessment Algar Lake Lateral Pipeline East Side Athabasca River Crossing In Sections 18, 19, 20-83-16-W4M", by John Pollock.

85-2

James Light
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Canadian Superior Oil Ltd.
Well site near Taber

PROJECT TYPE: HRIA and mitigation

LOCATION/SETTING: The well site is west of Taber on the bluffs above the Oldman River.

METHODOLOGY: The well site was examined, surface features were recorded, and it was shovel tested using a pick to expose the frozen subsurface.

RESULTS: One site, DkPb-14, was recorded on and around the well site. Six tipi rings and one cairn were mapped since they were to be destroyed. Three rings remain outside the well site area.

SITE TYPE: Tipi rings

REPORT: Complete, entitled "Historical Resource Impact Assessment and Mitigation of the Canadian Superior Wellsite 2-9-10-17-4, near Taber", by James A. Light.

85-3

John Pollock
Settlement Surveys Ltd.
19 Addison Crescent
St. Albert, Alberta

Small Community
Engineering Services
Sprae Creek subdivision

PROJECT TYPE: HRIA

LOCATION/SETTING: Fort McMurray, Alberta

METHODOLOGY: Systematic testing of judgmental areas of high and medium potential.

RESULTS: No sites were located.

REPORT: Complete, entitled "Historical Resources Impact Assessment Sprae Creek Subdivision in Sections 25, 26, 27-88-8-W4M Fort McMurray, Alberta", by John Pollock.

85-4

Barry J. Dau
Ethos Consultants Ltd
Group Box 20, Veinerville
Medicine Hat, Alberta

Ocelot Industries Ltd.
Grand Forks well sites/
pipeline

PROJECT TYPE: HRIA

LOCATION/SETTING: The project was located on natural prairie grass-covered terrain near the junction of the Bow and South Saskatchewan Rivers.

METHODOLOGY: The project consisted of the surface examination of two proposed gas well sites and a short section of pipeline. The examination was undertaken by foot and vehicle traverses with natural subsurface exposures examined and shovel tests dug.

RESULTS: One historical resources site (D1Ow-12) was found within and adjacent to one of the proposed well sites. This site consists of eight stone circles, a small cairn and a short stone alignment. The stone circles vary from poorly to well defined with inside diameters varying from 350 to 750 cm. The cairn is circular in shape with a diameter of 180 to 200 cm. It is composed of 50-100 large cobble-sized stones. The stone alignment is approximately 51 m in length and composed of single small boulder-sized stones and small cairns of 3-6 stones.

SITE TYPE: Stone circle/cairn/stone alignment

REPORT: Complete, entitled "An Historical Resources Impact Assessment of Three Proposed Development Locations near the Grand Forks, Alberta", by Barry J. Dau.

85-5

Bea Loveseth
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Alberta Culture
Potential of Aggregate
Resource Locales,
southeastern Alberta

PROJECT TYPE: Research designed to: 1) develop an evaluation system by which aggregate resource locales could be assessed for historical resource potential; 2) test this system on a sample drawn from 407 designated aggregate resource locales; 3) assess the relative historical resource potential of the specified borrow pits; and, 4) develop sieve criteria for management use by which future aggregate source locales may be evaluated.

LOCATION/SETTING: The study area is geographically defined as including the prairies, parklands and uplands of southeastern Alberta between Townships 1 to 39 and Ranges 1 to 29, Inclusive, West of the Fourth Meridian.

METHODOLOGY: The study was carried out in three phases. The first phase included the gathering and assessment of data, the development of a sampling program and test implications, and the production of an interim report. The second phase involved the conduct of field studies designed to provide an inventory of a sample of borrow pits. The third phase involved an evaluation of the results.

A total of 63 selected sample elements, each a quarter section in size, were foot traversed by four two-person crews to inventory paleontological, prehistoric and historic sites and to collect basic information on the nature of geographic and physiographic conditions.

RESULTS: Phase I resulted in 64 of 386 quarter sections being selected for detailed study. In Phase II, 119 sites - three historic and 116 prehistoric (one of which contained paleontological material) - were recorded in 43 of 62 quarter sections foot traversed. Phase III evaluation indicated that 32% of the sites were associated with terraces (edge and back equally divided), 5% with floodplains, 5% with slopes, 7.6% with linear prairie, 11.8% with desiccated terrace edges, 6.7% with major sloughs, 3.4% with prairie glacial features, 0.8% with hummocky prairie, 14.3% with upland features and 13.4% with subdued, flat prairie.

SITE TYPES: Prehistoric sites included: campsites (buried and surface), kills, buried bone beds, rings, cairns, quarries, ceremonial, lithic scatters; historic sites were associated with ranching.

REPORT: Complete, entitled "Final Report, Historical Resource Potential Aggregate Resource Locales Twp 1 to 39, Rge 1 to 29, W4M", by Bea Loveseth and Stanley Van Dyke.

85-6

Bruce Wright
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

United Management Ltd.
Edgemont Stage VI
subdivision

PROJECT TYPE: HRIA

LOCATION/SETTING: One hundred five acres on the west end of Nose Hill, an upland area between the Bow River and Beddington Creek in Calgary.

METHODOLOGY: The parcel was inspected via foot traverses, and all high potential areas were shovel tested. In addition, 15 backhoe tests were dug in gullies, swales and knolls.

RESULTS: Eight sites were located (EgPm-242 to 249). Sixty-three lithic and two faunal specimens were collected.

SITE TYPES: 4 lithic scatters, 3 isolated finds and 1 ring site

REPORT: Complete, entitled "Historical Resources Impact Assessment Calgary Subdivision SW 18-25-1-5. Final Report 85-6", by Bruce Wright.

85-7

James A. Light
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Canadian Superior Oil Ltd.
pipeline

PROJECT TYPE: HRIA and mitigation

LOCATION/SETTING: The proposed pipeline is located west of Taber, and crosses the Oldman River from the valley rim on the north side to the valley rim on the south side.

METHODOLOGY: The pipeline route was visually examined and shovel tested in areas of high probability for historical resources. Features were shovel tested and recorded. In the second phase, controlled excavations were carried out.

RESULTS: One site, DkPb-15, was recorded on the right-of-way on the valley rim on the south side of Oldman River. Ten tipi rings and two cairns were recorded in and around the right-of-way. Three rings and the cairn which would be destroyed, were test excavated with 20 50x50 cm units for a total of 5 sq. m.

SITE TYPE: Tipi rings and cairn

REPORT: Complete, entitled "Historical Resources Impact Assessment and Mitigation of the Canadian Superior Pipeline near 9-10-17-4 near Taber", by James A. Light.

85-8

James Light
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

County of Lethbridge
Coaldale gravel pit

PROJECT TYPE: Historical resources reconnaissance

LOCATION/SETTING: The gravel pit is located on the floodplain of the Oldman River, east of the town of Picture Butte.

METHODOLOGY: The proposed gravel pit was examined for surface features and backhoe tested to determine if buried soils and archaeological deposits were present.

RESULTS: No sites were found. Some soil deposition had occurred in some areas, but no buried soil surfaces were noted.

REPORT: Complete, entitled "Historical Resources Reconnaissance of a Gravel Pit in SE 3-11-19-4 for the County of Lethbridge", by James Light.

85-9

John Pollock
Settlement Surveys Ltd.
19 Addison Crescent
St. Albert, Alberta

Dome Petroleum Limited
Lindbergh commercial project

PROJECT TYPE: HRIA

LOCATION/SETTING: Near Elk Point, Alberta

METHODOLOGY: Judgemental and systematic survey of medium and high potential areas.

RESULTS: Seventeen prehistoric archaeological sites (FkOq-24 to 40), two historic archaeological sites (FkOq-41, 42) and three historic buildings or building complexes were found.

SITE TYPES: Surface scatters, isolated finds, historic archaeological sites and historic buildings

REPORT: Complete, entitled "Historical Resources Impact Assessment Dome Petroleum Limited Lindbergh Commercial Project Sections 12 and 14-55-6-W4M, Section 11-56-6-W4M and Section 30-55-5-W4M, near Elk Point, Alberta", by John Pollock.

ADDITIONAL INFORMATION: The above represents the third project Settlement Surveys has undertaken on Dome Petroleum lands in the Elk Point area. Previous projects were 83-17 and 84-77. These three projects have produced a total of 28 prehistoric sites and nine historic archaeological or building sites on a total land base of 1,605.2 ha (3,840 acres), indicating a prehistoric site density of one site per 57.33 ha (one site per 137 acres).

85-10	Terrance H. Gibson 9932 - 112 Street Edmonton, Alberta	Alberta Transportation Highway 1 twinning/Devries gravel pit

PROJECT TYPE: HRIA and mitigation of EePe-1 and 2

LOCATION/SETTING: Located two km from Cluny on Highway #1. Setting is native and cultivated prairie; sites are located on short grass prairie (now pasture) overlooking the Crowfoot Creek Valley.

METHODOLOGY: Foot traverse and shovel testing along 4 km of highway 1:14 improvement; also, surface examination and shovel testing of four borrow pit locations along and in the vicinity of highway route.

EePe-1 and 2 were mapped in detail. Thirty two 50x50 cm test units were established randomly and nonrandomly within the area of the rings to produce data on the archaeological productivity of the features and their surroundings. Two rock cairns were excavated.

RESULTS: No cultural remains were encountered on highway right-of-way. Three prehistoric sites were discovered in the vicinity of the borrow pits. One (EfPf-12) consisted of a surface scatter of bone and flakes and required no further assessment. The other two (EePe-1 and EePe-2) were found adjacent to one another. Together, they contained 30 tipi rings and eight rock cairns in undisturbed context, and required further mitigation.

Excavations revealed that one rock cairn may have concealed a subsurface pit. Pit fill was entirely sterile, although the sod surrounding the feature yielded a number of flakes. The other cairn was sterile. The probablistic sampling program in the vicinity of the rings yielded flakes in several test pits which were within the confines of stone features. This type of assessment procedure may be a useful indicator of tipi ring artifact productivity, although the sample size should be greatly increased to be statistically significant.

SITE TYPES: Surface scatter, tipi ring and cairn clusters

REPORT: Complete, entitled "Historical Resources Impact Assessment: Highway Project 1:14 AND Devries Gravel Pit", by Terrance H. Gibson.

85-11

Gloria J. Fedirchuk
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

PanCanadian Petroleum Ltd.
Travers well site, access road

PROJECT TYPE: HRIA

LOCATION/SETTING: A proposed well site and access road on the Little Bow River, south of the Travers Dam, Alberta, were investigated during this project. The development area is located in undisturbed grassland.

METHODOLOGY: Fortuitous exposures in the well site and access road were examined for cultural material. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites. Stone Circle No. 1, EePa-24, situated within the proposed access road, was mapped.

RESULTS: Two prehistoric sites were identified (EePa-23, 24).

SITE TYPES: Stone circles

REPORT: Complete, entitled "Historical Resources Impact Assessment PanCanadian Petroleum Limited Travers Well Site and Access Road", by G.J. Fedirchuk.

85-12

John Pollock
Settlement Surveys Ltd.
19 Addison Crescent
St. Albert, Alberta

TransAlta Utilities
Project 410, 794L
transmission line

PROJECT TYPE: HRIA

LOCATION/SETTING: South from Lac La Biche to Kikino Metis Colony

METHODOLOGY: Foot traverse and subsurface testing

RESULTS: One site, GeOx-44, was relocated and tested, and a site update was completed. Two new sites, GeOx-55 and GdOx-7, were also located.

SITE TYPES: Buried camps, buried isolated find and surface scatters

REPORT: Complete, entitled "Historical Resources Impact Assessment Project 410, 794L Transmission Line, Portion North of Metis Colony Lac La Biche, Alberta", by John Pollock.

ADDITIONAL INFORMATION: The portion of the transmission line passing through the Kikino Metis Settlement No. 7E was not part of this HRIA.

85-13	Barry J. Dau Ethos Consultants Ltd. Group Box 20, Veinerville Medicine Hat, Alberta	Alberta Forest Service/ Alberta Transportation Musreau Lake campground/ Smoky River gravel pits

PROJECT TYPE: HRIA

LOCATION/SETTING: The project was located in northwestern Alberta on the forested northern edge of Musreau Lake and the forested western edge of the Smoky River.

METHODOLOGY: Both locations were assessed in detail by foot traverse with all existing subsurface exposures examined closely. In addition, extensive shovel testing took place in those areas of both development locales that did not have adequate natural subsurface exposure.

RESULTS: No new historical resource sites were noted during the project. At the Musreau Lake campground, one previously recorded site, GdQp-3, was re-defined. The site consists of a small buried campsite eroding from the bank of Musreau Lake. A very small amount of cultural material was found at depths of 5-10 cm below surface. The site covers a small area and will not be seriously damaged by campsite development. Most of the proposed Smoky River gravel pits had been utilized by the time of the HRIA. No sites were noted in the remaining undisturbed area.

SITE TYPE: Buried campsite

REPORT: Complete, entitled "An Historical Resources Impact Assessment of a Proposed Day-use Campground on Musreau Lake and Three Proposed Gravel Pits on the Smoky River, Northwestern Alberta", by Barry J. Dau.

85-14

Gloria J. Fedirchuk
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

PanCanadian Petroleum Ltd.
Rockyford well site, access road

PROJECT TYPE: HRIA

LOCATION/SETTING: On Serviceberry Creek, southeast of the locality of Tudor, Alberta; the natural grassland of the development area has been partially disturbed by cultivation.

METHODOLOGY: Fortuitous exposures in the well site and access road were examined for cultural material. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric site.

RESULTS: One previously recorded prehistoric site, EgPh-1, was identified.

SITE TYPE: Cairn/campsite

REPORT: Complete, entitled "Historical Resources Impact Assessment PanCanadian Petroleum Limited Rockyford Well Site and Access Road", by G.J. Fedirchuk.

85-15

B.O.K. Reeves
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Coleman Collieries Ltd.
Country residential subdivision, Crowsnest Pass

PROJECT TYPE: HRIA

LOCATION/SETTING: North of Highway 3 and east of the McGillivray Creek Road at the west end of the community of Coleman in the Crowsnest Pass.

METHODOLOGY: An approximately 20 ha subdivision area and a proposed service roadway were examined by foot traverse. The foot traverse was topographically oriented with relatively flat glacial benches being thoroughly assessed.

RESULTS: No prehistoric sites were recorded. Historic post-World War II garbage dumps, a house platform, cart tracks and bulldozer pushes and pits were observed. These are of little historic significance and further studies were not recommended.

REPORT: Complete, entitled "Final Report, Historical Resources Impact Proposed Country Residential Subdivision Crowsnest Pass", by B.O.K. Reeves.

85-16

Bea Loveseth
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Town of Pincher Creek sewage lagoon development

PROJECT TYPE: HRIA

LOCATION/SETTING: North of Pincher Creek, Highway 3 and Canadian Pacific Railroad and east of Pincher Station in southwestern Alberta. The terrain is rolling foothills; native grasses are present only on the bedrock ridges, while the rest of the land is tilled.

METHODOLOGY: The entire 183 ha study area was foot traversed at intervals of 50 m complemented by shovel testing in high potential areas. Beside a spring and along an east-west former drainage channel, a backhoe was utilized to test for subsurface evidence of occupations.

RESULTS: Eleven prehistoric sites were recorded (DjPl-34 to 44). Ten were observed on the surface, and one was discovered in a buried context at 120 cm to 140 cm below surface. Each contained from one to in excess of 50 quartzite artifacts.

SITE TYPES: Lithic scatters, isolated find and small find

REPORT: Complete, entitled "Final Report, Historical Resources Impact Assessment Town of Pincher Creek Proposed Sewage Lagoon Development", by Bea A. Loveseth.

85-17

Edward J. McCullough
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Dome Petroleum Limited Wembley pipeline gathering system

PROJECT TYPE: HRIA

LOCATION/SETTING: The project area is situated between Homestead and Bear Lake, Alberta, within the boreal forest of northwestern Alberta. The entire length of the proposed right-of-way had been disturbed by cultivation.

METHODOLOGY: Fortuitous exposures along the proposed route were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites.

RESULTS: Six prehistoric sites and one historic site were identified (GhQs-13 to 15, GhQt-3, GiQt-9, 10).

SITE TYPES: Prehistoric artifact scatters, isolated finds, homestead

REPORT: Complete, entitled "Historical Resources Impact Assessment Dome Petroleum Limited Wembley Gathering System", by E.J. McCullough.

85-18

Edward J. McCullough
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Total Petroleum Canada Ltd.
Wembley pipeline project

PROJECT TYPE: HRIA

LOCATION/SETTING: The project area lies adjacent to Cutbank Lake, Alberta, within the boreal forest of northwestern Alberta. The entire length of the proposed right-of-way had been disturbed by cultivation.

METHODOLOGY: Fortuitous exposures along the proposed route were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites.

RESULTS: Five prehistoric sites (GhQs-8 to GhQs-12) and one historic site were identified.

SITE TYPES: Artifact scatters, isolated finds, Monkman Homestead

REPORT: Complete, entitled "Historical Resources Impact Assessment Total Petroleum Canada Ltd. Wembley Area Multipurpose Fluids Flowline", by E.J. McCullough.

85-19

James Light
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Hat Development
Burnside and Lecuyer subdivisions

PROJECT TYPE: HRIA and mitigation of EaOq-22 and 23

LOCATION/SETTING: The Lecuyer subdivision is located at prairie level above Bullshead Creek, at the south side of Medicine Hat. EaOq-22 and 23 are located in a ploughed field on the floodplain of the South Saskatchewan River in the City of Medicine Hat.

METHODOLOGY: The area of the Lecuyer subdivision was walked in narrowly spaced transects. Shovel testing was done as needed. EaOq-22 was completely collected using parallel tapes for grid reference. EaOq-23 was not relocated. The southern portion of previously recorded DlOp-2 was surveyed.

RESULTS: A total of 52 pieces of bone and lithic material was recovered from EaOq-22. None were diagnostic, although several tools were recovered. One new site, DlOp-16, was recorded.

SITE TYPES: Surface lithic scatters, campsite

CULTURAL AFFILIATION: DlOp-2 - Besant
DlOp-16 - Pelican Lake

REPORT: Complete, entitled "Historical Resources Impact Assessment of the Lecuyer Subdivision and Mitigation of EaOq-22 and EaOq-23", by James Light.

85-20

John Pollock
Settlement Surveys Ltd.
19 Addison Crescent
St. Albert, Alberta

Keith Driver & Associates
Chicken Hill Lake
subdivision

PROJECT TYPE: HRIA

LOCATION/SETTING: West of Bonnyville on Chicken Hill Lake

METHODOLOGY: The area of 37.45 ha was examined by systematic foot transects, subsurface testing in medium to high potential areas, with additional tests in likely spots.

RESULTS: No sites were located.

REPORT: Complete, entitled "Historical Resources Impact Assessment Chicken Hill Lake Subdivision Part of SW1/4, Sec. 23-59-8-W4M", by John Pollock.

ADDITIONAL INFORMATION: Other than its proximity to the lake, the area has no areas of physiographic or environmental quality that would be attractive to prehistoric peoples. No doubt, sites are present on the lake in other areas.

85-21

Jack Brink
Archaeological Survey of Alberta

Alberta Culture
Head-Smashed-In Buffalo Jump

PROJECT TYPE: Mitigation and research; site survey

LOCATION/SETTING: In southwestern Alberta, on the eastern flank of the Porcupine Hills, approximately 16 km west of Fort Macleod.

METHODOLOGY: Research excavations were undertaken in the processing site using 2x2 m units and 1x1 m units with provenience recorded to the 50x50 cm subquad in arbitrary 10 cm levels. All identifiable bone, features and fire broken rock were mapped in place. All excavated matrix was screened using 1/4 (6.3 mm) mesh. Test excavations of the water saturated deposits of the spring channel bisecting the kill site were conducted using 1x1 m units excavated in arbitrary levels.

Site survey was undertaken along the cliff edge of the Porcupine Hills north of the jump to test for other potential kill sites. Erosional cuts were visually inspected and promising areas tested with 1x1 m units excavated in arbitrary levels and the matrix screened through 1/4 inch (6.3 mm) mesh.

RESULTS: A total of 18 sq. m was excavated in the processing area, 16 sq. m of which was contiguous excavation area. The cultural deposits ranged in depth from 20 to 50 cm below surface, and represent the deepest deposit encountered in three years of testing. No stratigraphic separation of deposits was forthcoming, however. Testing of the spring channel did reveal water saturated deposits and some organic remains, but the deposits are thoroughly mixed and some oxidization is evident. No further testing of this area is anticipated.

The site survey recorded the location of a previously reported kill site (DkPj-27) approximately 2 km north of Head-Smashed-In and two 2x2 m test units revealed a stratified bone bed extending to 2 m below surface. Further testing of this site will be completed in 1986. Additional research included the continuation of off-site experiments in pit feature replication and the breaking of bone for marrow removal and extraction of bone grease in a hide-lined boiling pit.

SITE TYPES: Buffalo jump and associated camp and processing site; small kill site north of main jump site.

REPORT: Preliminary report in this volume; final report in preparation.

85-22

Barry J. Dau
Ethos Consultants
Group Box 20, Veinerville
Medicine Hat, Alberta

Placer Cego
Petroleum Ltd.
Hilda-Schuler gas
gathering system

PROJECT TYPE: HRIA

LOCATION/SETTING: The project area was located on gently rolling, prairie grass-covered and cultivated terrain, 2 to 26 km east of the South Saskatchewan River near Hilda, Alberta.

METHODOLOGY: The project consisted of the surface examination of 11 proposed gas well sites and approximately 16 km of pipeline rights-of-way. The development locations were assessed by foot and vehicle traverses with all natural subsurface exposures and open cultivated fields within the locations examined in detail. Where required, shovel tests were dug in areas lacking existing subsurface exposure.

RESULTS: No historical resource sites were located.

REPORT: Complete, entitled "An Historical Resources Impact Assessment of a Series of Gas Wellsites and Pipeline Rights-of-way near Hilda, Southeastern Alberta", by Barry J. Dau.

85-23

James W. Helmer
Department of Archaeology
University of Calgary
Calgary, Alberta

Alberta Culture
Strathcona site

PROJECT TYPE: Research/archaeology field school; continuing excavations at FjPi-29.

LOCATION/SETTING: On the east side of the North Saskatchewan River, in the County of Strathcona, near the eastern limits of the City of Edmonton.

METHODOLOGY: Following a stratified cluster sampling design, 25 1x1 m units were excavated. An additional 1.75 sq. m of surface was excavated to expose a large feature discovered on the western perimeter of the site. The stratified random sampling survey in Tp 51, Rge 25, W4M, was attempted with poor results due to problems with access to the sample quadrats.

RESULTS: Approximately 5270 lithic artifacts and bone fragments were recovered, including a complete range of tool and debitage types. The large feature on the western perimeter of the site appears to be an excavation associated with the historic occupation of the site.

SITE TYPE: Lithic workshop/habitation

CULTURAL AFFILIATION: Middle Prehistoric and Late Prehistoric (Oxbow, Duncan, McKean, Pelican Lake, Avonlea and Old Women's)

DATES: ca. 5000 years B.P. to contact, based on projectile point typology.

REPORT: 1985 progress report and the final report of the five year research programme on the Strathcona archaeological field school are in preparation.

85-24

Gloria J. Fedirchuk
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Alberta Culture
Little Bow site

PROJECT TYPE: Research at EaPh-4

LOCATION/SETTING: The Little Bow site is situated on the edge of a high bluff on the left bank of the Little Bow River, approximately 14 km east of Stavely, Alberta.

METHODOLOGY: Mitigative excavations were conducted at the Little Bow site in 1984 under Permit 84-38. Bulldozing activity in the spring of 1985 removed the top few centimetres of topsoil, exposing a quantity of cultural material. The condition of the site was used to give field experience to the University of Calgary Introductory Archaeology (Field Methods) class. A grid of 10 m squares was laid out over the site area and surface collection was completed.

RESULTS: Over one thousand items were collected, including 27 potsherds, 650 lithic artifacts, over 400 bone fragments, and 49 fragments of fire broken rock.

SITE TYPE: Prehistoric campsite

DATES: Late Prehistoric Period, based on projectile point styles and ceramics.

REPORT: In preparation, to be entitled "The Little Bow Site, Alberta", by G.J. Fedirchuk.

85-25

Eugene M. Gryba
3, 346 - 4th Avenue N.E.
Calgary, Alberta

Alberta Transportation
Cadron gravel pit/Harold
Creek-Salisbury Road/
Horse Creek crossing

PROJECT TYPE: HRIA

LOCATION/SETTING: In central and southwestern Alberta; North Saskatchewan River valley, Rocky Mountain foothills southwest of Cremona, and Bow River tributary west of Cochrane.

METHODOLOGY: Generally, the areas were examined by an extensive foot traverse and visual inspection of available exposures, followed by an intensive shovel test program of identified high to medium potential areas. Matrix was usually sifted through a screen with a 6.0 by 2.9 mm diamond shaped mesh. The historic site was documented photographically and local informants were interviewed.

RESULTS: A historic site was recorded north of Andrew; one prehistoric site was recorded near Horse Creek (EhPp-55), while eight prehistoric sites (EiPr-4 to EiPr-9, EiPs-12, 13) were discovered along Harold Creek Road. Split pebble technology is quite common at these sites. Side notched points were found at EiPr-5 and EiPr-9; quartz flakes were encountered at EiPr-4. Faunal remains were restricted to burnt bone scraps. All eight sites have very shallow stratigraphy.

SITE TYPES: Ukranian immigrant farmyard complex, tipi rings, campsites

CULTURAL AFFILIATION: EiPr-5, 9 - Late Prehistoric Period, based on projectile point typology.

REPORT: Complete, entitled "Historical Resources Impact Assessment of Cadron Gravel Pit, Harold Creek/Salisbury Road, and Horse Creek Crossing", by Eugene M. Gryba.

85-26

Rebecca J. Balcom
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Norcen Energy Resources
Majorville well site
access road

PROJECT TYPE: HRIA

LOCATION/SETTING: The access road extends to a well site which is just west of the Majorville Cairn on the south side of the Bow River; the town of Bassano is approximately 25 km to the northeast. The road traverses rolling prairie.

METHODOLOGY: The portions of the road to be realigned measure approximately 900 m x 15 m. The entire realignment was walked and visually examined.

RESULTS: Two sites were located, EdPc-64 and 65. The sites will not be impacted by the proposed road realignments.

SITE TYPES: Tipi ring, possible quarry site

REPORT: Complete, entitled "Historical Resources Impact Assessment Majorville Wellsite Access Road Realignment", by Rebecca J. Balcom.

85-27

Rebecca J. Balcom
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Orbit Oil and Gas Ltd.
Majorville pipeline and
access road

PROJECT TYPE: HRIA

LOCATION/SETTING: The development is located in the native prairie about 25 km southwest of Bassano on the south side of the Bow River. The Majorville cairn is nearby.

METHODOLOGY: The pipeline right-of-way is 6 km x 15 m and the access road is 4 km x 15 m. The entire area was walked and visually examined. Shovel tests were excavated in association with sites.

RESULTS: A total of fourteen sites were found (EdPc-53 to 63, EdPc-66, EdPd-9, 10).

SITE TYPES: Isolated finds, lithic scatters, and tipi rings

REPORT: Complete, entitled "Historical Resources Impact Assessment Orbit Oil and Gas Ltd. Majorville Pipeline and Access Road", by Rebecca J. Balcom.

85-28

Rebecca Balcom
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Canadian Occidental
Petroleum Ltd.
Mazeppa gas gathering
system

PROJECT TYPE: HRIA

LOCATION/SETTING: The study area is east and north of High River. The terrain is flat to gently rolling and is almost entirely cultivated. No creeks are crossed but the Highwood River parallels the study area at a distance of from 500 m to 6 km.

METHODOLOGY: The area examined included 40 km of pipeline right-of-way, six well sites and their respective access roads. The entire right-of-way was walked and visually examined. Shovel testing was limited to those areas exhibiting medium to high potential for historical resources and poor surface visibility or areas where deeply buried sites might be expected. All sites were shovel tested. Further assessment (shovel testing and 1 x 1 m units) was carried out at EdPk-35 and 37. EdPk-37 was partially ploughed to improve surface visibility.

RESULTS: Eighteen sites were recorded during the impact assessment (EdPl-14, 15, EdPk-26 to 38, EePk-283, 284, EePl-233). The majority of the sites are isolated finds but campsites and lithic scatters were also located. One hundred and sixty-six artifacts were collected, with quartzite debitage being the major artifact category. Exotic materials included obsidian, Knife River Flint, and Banff chert. Formed tools include projectile points, bifaces, unifaces, a wedge and a microblade.

SITE TYPES: Isolated finds, campsites, lithic scatters

CULTURAL AFFILIATION: Projectile point types include Scottsbluff, Besant, Oxbow, and a corner notched variety. These are from the Early and Middle Prehistoric Periods.

DATES: Projectile points represent a time span of 10,000 to 3500 years ago.

REPORT: Complete, entitled "Historical Resources Impact Assessment, Mazeppa Gas Project Final Report Permit 85-28", by Rebecca Balcom.

85-29

Maureen Rollans
Dept. of Anthropology
University of Alberta
Edmonton, Alberta

Alberta Culture
Head-Smashed-In Drive
Lane Survey

PROJECT TYPE: Survey, mapping and test excavation

LOCATION/SETTING: In southwestern Alberta, on the eastern flank of the Porcupine Hills, approximately 16 km west of Fort Macleod.

METHODOLOGY: Selected components of the Head-Smashed-In drive lane complex were carefully mapped, drawn and photographed. Selected cairns were excavated to remove drifted soil and thereby expose the structure of the rock cairn. The drive lanes were mapped using a transit and stadia recording both horizontal and vertical relationships. Lines were plotted on topographic maps using available topographic land marks. Cairns were drawn to 1/10 scale and photographed. The raw material of the cairn stones was recorded and notes taken regarding the structure of each rock cairn.

RESULTS: A total of 21 drive lanes were mapped in detail, involving the accurate recordings of over 1700 individual cairns; 35 cairns were excavated. These data are currently being analysed as part of the author's master's thesis research.

SITE TYPES: Drive lane complex and drive lane cairns

REPORT: Complete, entitled "A Preliminary Formal and Functional Analysis of the Drive Lane System at Head-Smashed-In Buffalo Jump", by Maureen Rollans. This report details results of field research. Further analysis in preparation as part of master's thesis.

85-30

Peter T. Bobrowsky
9932 - 112 Street
Edmonton, Alberta

Alberta Transportation/
Recreation and Parks
Highway construction/parks development

PROJECT TYPE: HRIA

LOCATION/SETTING: Several areas throughout Alberta, ranging from High Level in the north, to the U.S. border in the south, east to Medicine Hat and west to Grande Prairie. All major environmental zones were encountered with the exception of Alberta's high alpine. Projects ranged from highway expansions and rights-of-way to gravel pits and public park developments.

METHODOLOGY: All projects involved independent foot traverse by at least two persons (both with permit status) of the proposed development areas and visual examination of all available exposures. Additionally, shovel testing was employed in areas of medium to high potential.

Encountered sites were further tested to examine both horizontal and vertical extent of cultural materials.

RESULTS: Several projects provided no evidence of either prehistoric or historic occupations in the proposed impact areas. Of the successful projects, the following summarizes the results: 9 historic sites are EiPj-2, EiPj-3, EhPj-7, DjPn-123, EePm-104, EePn-80, EfPp-5, IdPq-1, IdPr-1; 23 prehistoric sites are EjPb-1, DkPq-50, EjPi-10, EjPi-11, EjPi-12, EjPk-12, EePm-103, EePm-105, EePm-106, DlOu-13, EePc-9, GfOx-45, GcOv-1, FbPk-11, FbPh-7, FbPh-8, FaPh-1, FaPh-2, GkOp-1, GkOp-2, GkOp-3, FaPo-17; and 1 mixed prehistoric/historic site is GfOx-46.

SITE TYPES: Campsites, cairns, tipi rings, Wigwam, middens, isolated finds

REPORT: In preparation

85-31

Margaret Kennedy
Dept. of Archaeology
University of Calgary
Calgary, Alberta

United Church of Canada
Morleyville Mission

PROJECT TYPE: Research excavations at EhPq-6

LOCATION/SETTING: West of Morley, on the north side of the Bow River, west of its junction with the Ghost River; in foothills, characterized by short grass prairie. Former Mission site stood on lower bench below prominent McDougall Memorial Church (still standing).

SITE TYPE: Historic Morleyville Mission

DATES: 1874-ca. 1922

METHODOLOGY: The 1985 program continued excavations begun in fall, 1984 (permit 84-88), which were discontinued due to winter weather. Using combined prospecting/assessment techniques of magnetometer survey, metal detection, historic photograph comparison and excavation, we have thus far identified nine building foundations, three privy depressions, a small dump, and part of the original fenceline, plus other anomalous features not yet identified.

RESULTS: The archaeological program has made substantial contributions towards identifying spatial layout of the former Mission site, which does not appear to have been recorded in any form other than contemporary sketches and photographs. Once the artifact and faunal analyses (now underway) are completed, we expect to have useful and significant insights into temporal affiliation of the individual features, subsistence practices, trade networks and social/economic behavior as interpreted from the artifactual record. The results of the archaeological component, along with the historic research component being conducted by Ian Getty, will contribute to a site Master Plan, which will lead towards the project's final goal, interpretation of the site for public visitation and education.

REPORT: In preparation

85-32	**Bea Loveseth** **Lifeways of Canada Ltd.** **317 - 37 Avenue N.E.** **Calgary, Alberta**	**Canlea Western Holdings Limited** **Phase III - Scenic Acres subdivision**

PROJECT TYPE: Evaluation excavations at EgPn-240

LOCATION/SETTING: In northwest Calgary in grasslands of hummocky disintegration moraine; some historic disturbance.

METHODOLOGY: Test excavations of 8 sq. m were conducted at EgPn-240.

RESULTS: Excavations yielded 11 lithic specimens, including a projectile point, scraper and flakes, and two historic items.

SITE TYPE: Campsite

CULTURAL AFFILIATION: McKean

DATE: On the basis of point typology, Middle Prehistoric Period, ca. 4500 to 2500 years B.P.

REPORT: Complete, entitled "Final Report, Conservation Studies EgPn-240", by Bea Loveseth.

85-33	**Bea Loveseth** **Lifeways of Canada Ltd.** **317 - 37 Avenue N.E.** **Calgary, Alberta**	**Alberta Natural Gas Company** **Gas supply pipeline/ Peace River expansion project**

PROJECT TYPE: HRIA

LOCATION/SETTING: The pipeline runs north of Peace River tying in with a Nova, an Alberta Corporation pipeline. It extends generally eastward to connect with the Shell PREP plant site near Cadotte Lake. Approximately 30 km of a 75 km natural gas supply pipeline right-of-way were assessed.

METHODOLOGY: Six high potential areas of the 20-100 m wide pipeline right-of-way and an access road west of the Peace River were foot traversed. Shovel testing was utilized to complement surficial examination. On the terraces west of the Peace River, a backhoe was employed to determine if deeply buried sites were present.

RESULTS: Three prehistoric sites (HcQh-2 to 4) were recorded and HcQh-1, previously identified, was reassessed.

SITE TYPES: Surface isolated find, small find, campsite and buried temporary campsite

REPORT: Complete, entitled "Historical Resources Impact Assessment Alberta Natural Gas Company Limited Gas Supply Pipeline to Shell Peace River Expansion Project, Townships 84 and 85, Ranges 18 to 25, W5M", by Bea Loveseth.

85-35	Barry J. Dau Ethos Consultants Ltd. Group Box 20, Veinerville Medicine Hat, Alberta	Eastern Irrigation District Brooks grazing reserve

PROJECT TYPE: HRIA

LOCATION/SETTING: The project area is located on gently to moderately rolling natural prairie grassland at the junction of Highways #1 and #36, just west of Brooks, Alberta.

METHODOLOGY: The project consisted of the examination of 966 ha of rangeland designated for re-seeding to improve its animal carrying capacity. The entire development locale was assessed by foot and vehicle traverse varying from 25 to 100 metres in width. All natural subsurface exposures within the area were examined in detail.

RESULTS: During the course of the project, five isolated find sites (EdOx-10, 11, and 12, EdPa-8 and 9) were recorded. These consist of single pieces of lithics usually found in exposures on the edges of dry seasonal ponds. No cultural material was found in situ. All the sites noted were of limited historic resources potential.

SITE TYPES: Isolated finds

REPORT: Complete, entitled "An Historical Resources Impact Assessment of a Proposed Rangeland Improvement Area near Brooks, Southeastern Alberta", by Barry J. Dau.

85-36

John Pollock
Settlement Surveys Ltd.
19 Addison Crescent
St. Albert, Alberta

Nova, An Alberta Corporation
Foothills Mainline Extension, Spring Creek reroute

PROJECT TYPE: HRIA

LOCATION/SETTING: South of Sturgeon Heights

METHODOLOGY: Foot traverse and extensive subsurface testing of high potential areas.

RESULTS: No sites were located.

REPORT: Complete, entitled "Historical Resources Impact Assessment Spring Creek Reroute Foothills Mainline Extension", by John Pollock.

ADDITIONAL INFORMATION: Although no sites were located during this project, the area is considered to have potential.

85-37

Sheila J. Minni
9604 - 151 Street
Edmonton, Alberta

City of Edmonton
SLRT Extension-Phase II

PROJECT TYPE: HRIA

LOCATION/SETTING: In Edmonton, at the proposed SLRT bridge crossing approaches across the North Saskatchewan River valley. The study area was immediately upstream from the High Level Bridge on the north and south sides of the river.

METHODOLOGY: Foot survey, inspection of all river bank exposures, 59 shovel tests and three 1x1 m test excavation units.

RESULTS: The field survey located 27 historic archaeological features within and slightly east of the right-of-way on the south side of the river. All but one of these features were considered to be associated with the Pollard Brickyard (1898-1913), also referred to as FjPj-27. Some remains of the Bedard Tannery (1896 - ca. 1913) may also be located within this group of features. The features associated with FjPj-27 consisted of two garbage dumps and one area of brick remains eroding from the riverbank. The terrace south of the riverbank contained nine circular depressions, three circular mounds, nine linear mounds, one brick lined square depression and one large concrete block. The final feature consisted of a recent square depression located on the steep slope to the SLRT south portal. One recent wood frame building was also located close to FjPj-27. No prehistoric and paleontological remains were located in the study area south of the river. No historic, prehistoric or paleontological remains were located in the study area on the north side of the river.

SITE TYPES: historic brickyard, tannery

REPORT: Complete, entitled "Historical Resources Impact Assessment, SLRT Extension - Phase II", by Sheila Minni.

85-38	**Brian Ronaghan** **Archaeological Survey of Alberta**	**Alberta Transportation** **Callahan Sand Pit**

PROJECT TYPE: HRIA and research at EdPk-38

LOCATION/SETTING: East of High River on a fossilized dune structure overlooking but considerably distant from the present Frank Lake; originally short grass plains, the area had been ploughed for a number of years before sand extraction.

METHODOLOGY: The area was visually examined prior to permit work to determine whether sand extraction had damaged or exposed cultural materials. A subsequent salvage program by B. Ronaghan and M. Wilson of the University of Calgary involved controlled surface collection of exposed bone, test excavation of two intact site areas containing scattered faunal elements, and excavation of two geological profiles to determine the sedimentary origin of the feature.

RESULTS: Despite the widespread nearby occurrence of artifacts, particularly relating to Paleo-Indian occupations, no lithic artifacts were recovered during collection or testing. Excavations encountered a buried stable surface presumably the source of the substantial numbers of surface faunal elements. The bone material was fairly well preserved but highly fragmented suggesting possible butchering. No incontravertable evidence of a human origin for these deposits was recovered.

SITE TYPES: Paleontological or possible faunal processing site

DATES: bone samples to be analyzed

REPORT: In preparation, jointly with Michael Wilson

85-40

John Pollock
Settlement Surveys
19 Addison Crescent
St. Albert, Alberta

Aldritt Development Ltd.
Residential subdivision

PROJECT TYPE: HRIA

LOCATION/SETTING: West boundary of Edmonton adjacent to the Stony Plain Indian Reserve (Enoch Band) #136, near Winterburn.

METHODOLOGY: Work included archival research, foot transects, surface and subsurface inspection, aerial photo interpretation (1923 and 1949 photos).

RESULTS: Four prehistoric sites (FjPk-15 to 18) were found and one former Oblate Mission 20 acre (8.09 ha) area was examined. It dates from the early 1880s to 1953, was known as the Winterburn Mission and was established by Les Reverends Peres Oblats de Marie Immaculee de Territories du Nord Ouest. There are historic archaeological deposits and an undisturbed midden area (FjPk-19) associated with the mission.

SITE TYPES: Surface scatters, historic mission dating to early 1880s

REPORT: In preparation

ADDITIONAL INFORMATION: This report contains notes on a Protestant Mission dating to the 1880 time frame with an associated unmarked cemetery located in the adjacent quarter section to the south.

85-41

Edward J. McCullough
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

The Imperial Pipe Line Co. Ltd.
Edmonton-Sundre pipeline project

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed Edmonton Sundre Expansion project is situated between Edmonton and Sundre, Alberta. Most of the project area lies on the eastern edge of the parkland. The southernmost portion of the route is situated on the western edge of the mixedwood boreal forest. Most of the proposed right-of-way had been disturbed by cultivation.

METHODOLOGY: Examination of fortuitous exposures and shovel testing along the proposed route were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites.

RESULTS: Thirteen prehistoric sites were identified (FbPo-1, FcPn-10, FdPn-7, 8, FePm-6, FgPj-3, FlPl-3, FhPi-3 to 8).

SITE TYPES: Campsites, artifact scatters, isolated finds

CULTURAL AFFILIATION: FhPi-5 - McKean, based on projectile point

DATES: FhPi-5 - 2500 - 1500 B.C.

REPORT: Complete, entitled "Historical Resources Impact Assessment The Imperial Pipe Line Company, Limited Edmonton Sundre Expansion Project", by E.J. McCullough.

85-42

Margaret Kennedy
Dept. of Archaeology
University of Calgary
Calgary, Alberta

Alberta Historical
Resources Foundation
Berry and Shears
whiskey post

PROJECT TYPE: Research survey and testing

LOCATION/SETTING: East of Okotoks, at the junction of the Bow and Highwood Rivers. The site lies in a cultivated river bottom field, north of the Highwood River.

SITE TYPE: Whiskey post site

DATES: ca. early 1870s

METHODOLOGY: Since the exact location of the site was unknown, the field program in July 1985 involved systematic metal detection traverses. Find spots were pin flagged, and a sample was later shovel tested.

RESULTS: The field was heavily littered with metal objects, dating to any time within the last century. No clear pattern emerged. Evidently, ice rafting and flooding at the river junction has deposited large quantities of miscellaneous metal material, thus masking the site's material residue. Cultivation has also contributed to this site's disturbance (it was originally hoped that the successive floods here would have deposited enough silt to preserve the site from cultivation). A visit by the family who originally owned the farm, including both the man who pulled out the remaining log course work some fifty years ago, and his nephew who dug in the post foundations years ago, failed to relocate the post's exact location. Further prospecting was not deemed feasible within the given time and budgetary frame.

REPORT: Interim report complete; final report in preparation.

85-43

Brian Ronaghan
Archaeological Survey of Alberta

Alberta Culture
Burmis-Lundbreck Corridor

PROJECT TYPE: Continuation of a research, resource management study: systematic assessment of previously recorded prehistoric sites in a 41 sq. km (16 sq. mi.) potential development area known as the Burmis-Lundbreck Corridor.

LOCATION/SETTING: In rolling foothills of southwestern Alberta immediately east of the Crowsnest Pass, the corridor encompasses a wide variety of topographic and depositional locales along both the north and south sides of the valley of the Crowsnest River.

METHODOLOGY: Four known sites were visited and visually examined. An unusual stone feature consisting of a complex nonrandom arrangement of cobbles was mapped. Three sites consisting of buried and surficial cultural materials including lithic artifacts, bone and fire cracked rock were test excavated using dispersed, controlled 1x1 m units.

RESULTS: The three buried sites exhibited deeply stratified cultural occupations. DjPn-16 is provisionally thought to represent a comparatively rich winter campsite located on a low terrace near a natural seep; depth of burial ranged from 30 to 160 cm below surface. DjPn-60 is a small campsite on a higher terrace near the west end of the area and consisted of a surface stone feature as well as two, possibly three, sparse, buried components. DjPn-66, high above the valley, appears to be a small but scattered, deeply buried workshop/processing site.

SITE TYPES: Stone features, campsite/processing areas

CULTURAL AFFILIATION: Based on typology:
DjPn-16 - Late Plains, Pelican Lake, Oxbow, McKean, a fish tailed-like variety as yet unclassified, Bitterroot, and possible older unknown notched type
DjPn-60 - McKean
DjPn-66 - Bitterroot

DATES: Bone and charcoal samples are being analyzed.

REPORT: In preparation

85-44	**John Pollock** **Settlement Surveys Ltd.** **19 Addison Crescent** **St. Albert, Alberta**	**Gulf Canada Resources Inc.** **Valhalla pipeline**

PROJECT TYPE: HRIA

LOCATION/SETTING: Saddle Hills area north of Beaverlodge, Alberta.

METHODOLOGY: Foot traverse with subsurface testing.

RESULTS: Two sites were located, one historic site (moose hunting camp) and one prehistoric site (GjQt-3) consisting of an isolated find of a black chert side scraper.

SITE TYPES: Hunting camp buildings, isolated find

REPORT: Complete, entitled "Historical Resources Impact Assessment Gulf Canada Resources Inc. Valhalla Pipeline Project Section 25-76-10-W6M to Sections 34 & 25-76-9-W6M", by John Pollock.

ADDITIONAL INFORMATION: Results from this project indicate that upland areas in northwestern Alberta do have potential for historical resources. More work needs to be done to fully understand the settlement patterns and site types found in these upland areas such as the Saddle Hills, Spirit Ridge, Birch Hills, Clear Hills, Whitemud Hills and areas further north such as the Chinchaga River country.

85-45	**James A. Light** **ARESCO Ltd.** **2912 - 18 Street N.E.** **Calgary, Alberta**	**Alberta Energy and Natural Resources** **Bow River boat launch**

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed developments are a boat launch, parking lot, and access road on the south side of the Bow River. The area is a low, reclaimed gravel bar about 17 km south of Ogden.

METHODOLOGY: The development area was visually examined and shovel tested.

RESULTS: No archaeological sites were noted.

REPORT: Complete, entitled "Historical Resources Impact Assessment of a Boat Launch on the Bow River in Sec. 3-T22-R29-W4M", by James A. Light.

85-46

Martin Magne
Archaeological Survey of Alberta

Alberta Culture
Grande Prairie Inventory

PROJECT TYPE: Survey of areas of Wapiti River and documentation of private artifact collections in the Grande Prairie area.

LOCATION/SETTING: Survey was conducted along north bank of Wapiti River, mainly in sand dune locales; collections were documented throughout the Grande Prairie area, mostly from cultivated land.

METHODOLOGY: Survey involved judgemental examination of sand dune and forested areas plus examination of 250 m x 250 m quadrats within 1 km of major confluences. The area has much surface exposure, but 25 m interval shovel tests were placed where necessary. Additional sites were recorded when brought to light by local people. Collections documentation involved photography of projectile points, gathering locational data and some on-site inspections. One site (GgQt-2) was test excavated with six 1x1 m units, using natural layers.

RESULTS: Quadrat survey was largely unproductive (2 sites: GgQt-2, GjQn-4) due to narrow sampling frame. Judgemental survey resulted in the recording of 16 additional sites (GgQt-3 to 7, GfQu-1, GeQv-1, GbQx-1, GhQr-1, GgQo-1, 2, GkQo-6, 7, GlQo-4 to 6). Test excavations at GgQt-2 yielded a buried soil horizon but no diagnostics or dateable materials. Collections research produced 54 collections for which collecting locales can be plotted to 1/4 sections, with two apparently distinct areas of Paleo-Indian point occurrence.

SITE TYPES: Lithic scatters, burials, rock feature, possible tipi ring

CULTURAL AFFILIATION: Early, Middle and Late Prehistoric, based on projectile point typology.

REPORT: Preliminary report in this volume; final report in preparation.

85-47

B.O.K. Reeves
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Alberta Environment
Oldman River Dam
reservoir

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed Oldman River Dam is located along the mid-reaches of the Oldman River drainage north of Pincher Creek. Approximately 35 linear kilometres of the Oldman, Crowsnest and Castle River valleys will eventually be flooded to provide irrigation for agricultural operations downstream. A variety of associated developments will be necessary prior to filling of the reservoir. The majority of lands involved have not been previously disturbed.

METHODOLOGY: Because of variable access to private lands throughout the area, a staged program of investigations was necessary. Initial inventory studies involved surface examinations of the reservoir area, recording of prehistoric and historic sites and identification of areas requiring subsurface testing. Historic period site assessment and archival studies were also conducted, as were geoarchaeological investigations to establish depositional/erosional sequences in the valley. Deep testing for prehistoric sites and subsurface site assessment was also initiated. Problems with obtaining access throughout the reservoir precluded completion of the various study components.

RESULTS: To date, a total of 310 prehistoric sites have been recorded within and adjacent to reservoir boundaries. Many sites still require assessment and a number of areas of potential deep burial require testing; 46 historic period sites were recorded and assessed. Geoarchaeological studies were not completed.

SITE TYPES: Prehistoric sites have been classified into the following types: 79 tipi ring sites; 52 tipi ring and cairn sites; 23 tipi ring, cairn and drive lane sites;

27 cairn sites; 9 drive lane sites; 58 terrace campsites; 30 terrace tipi ring campsites; 5 bison kills; 15 bluff-top campsites; and 3 large diameter (spiritual) stone circles. Historic sites include: standing structures, ruins, foundations, and non-habitation sites such as road and rail beds.

REPORT: An interim report discussing the results of surface inventory, historic and geoarchaeological studies is currently being prepared. The final report must await completion of field studies.

85-48	**Michael R.A. Forsman** **Archaeological Survey of Alberta**	**Alberta Culture** **Fort Chipewyan**

PROJECT TYPE: Site mitigation, site assessment for designation

LOCATION/SETTING: In the community of Fort Chipewyan, at the west end of Lake Athabasca; area characterized by bedrock outcrops, sand deposits, grasses and low bush vegetation.

METHODOLOGY: A powder magazine (IeOs-4) located 0.5 km east of main Fort Chipewyan H.B.C./N.W.C. complex (IeOs-3) was completely excavated. Testing at IeOs-3 concentrated on chief factor's house constructed in 1872 to assess structural integrity of a late period building. Documentary literature review was conducted; a site contour plan was produced prior to excavation of 1x1 m units on grid layout. Excavations were by shovel and trowel, and matrix was screened through .65 cm mesh.

RESULTS: Excavation of the powder magazine revealed few wooden structural remains. The foundation was supported by stones resting directly on bedrock. The foundation of the chief factor's house was in variable condition with some disturbance and some excellent preservation of foundation stonework and wooden structural remains.

SITE TYPE: Major fur trade depot for the Athabasca District

DATES: Although the site dates to the early 1800s, excavated remains dated ca. 1872-1950.

REPORT: In preparation

85-49	**Sheila J. Minni** **9604 - 151 Street** **Edmonton, Alberta**	**Alberta Historical Resources Foundation** **Frog Lake Massacre site**

PROJECT TYPE: Research at FkOo-10

LOCATION/SETTING: The site is located at the east edge of central Alberta, some 3.5 km south of Frog Lake and 13 km north of the North Saskatchewan River. Site is overgrown by grasses, willow and poplar.

METHODOLOGY: Historical research relating to the growth and development of the Frog Lake settlement was first completed. Fieldwork consisted of intensive site survey to locate structural features; preparation of a site map by a qualified land surveyor; 12 sq. m of test excavation to provide information on the extent, function, nature and research potential of the site remains.

RESULTS: Fieldwork resulted in the location of a total of 32 archaeological features consisting of 28 depressions, one mound, one historic artifact scatter and the remnants of 2 wagon trails. These 32 features delimit the main settlement area (350 m x 600 m) and also add the lumber mill to the site. The test excavations exposed both structural and artifactual information which would be useful in the interpretation or development of the site.

SITE TYPE: Historic settlement which was a subsidiary to Fort Pitt; contained the houses, stores, outbuildings, etc. of government, Hudson's Bay Company, Roman Catholic mission, independent traders and sawmill activities.

DATES: ca. 1881-1885

REPORT: Complete, entitled "Archaeological Investigation of the Frog Lake Massacre Site (FkOo-10)", by Sheila J. Minni.

85-50
Heinz Pyszczyk
Archaeological Survey of Alberta
Alberta Culture
Historic Dunvegan
H.B. Co. Fort

PROJECT TYPE: Research and mitigative investigations around the 1878-1918 Factor's House, Dunvegan.

LOCATION/SETTING: At historic Dunvegan, approximately 24 km south of Fairview, Alberta, on the river flats on the north side of the Peace River; the fort site is landscaped and partly under crops.

SITE TYPE: H.B. Co. fur trade fort

DATES: 1878-1918

METHODOLOGY: Units were excavated at the north and south doors, at the northwest corner and along the middle of the west wall. Excavations were conducted by trowel and shovel. All matrix was screened. All architectural remains were mapped and photographed.

RESULTS:
1) Extensive wooden structural remains were associated with north door, which are part of the hallway extension.
2) Regularly spaced wooden joists, to support a walkway, were exposed on the south side of the Factor's House.
3) Northwest building flagstone foundation was roughly 1 m thick.

REPORT: In preparation, and will include a description of all architectural, artifact and faunal remains (for more details regarding architectural remains, see this volume).

85-51

Bruce Ball
Archaeological Survey of Alberta

Alberta Culture
Sherwood site/ Miller site

PROJECT TYPE: Research and assessment of report of a bison pound site (FiOq-1) near Vermilion and bison jump site on the Red Deer River (FbPi-1).

LOCATION/SETTING: The Sherwood site is located eight km west of Islay in an open cultivated field. The Miller site is located on the Red Deer River south of Haynes.

SITE TYPES: The Sherwood site is a disturbed site with bone and lithics scattered throughout the plough zone. The Miller site is a bison jump.

METHODOLOGY: The Sherwood site was tested by excavating four 2x2 m units systematically within concentrations of bone and lithic remains. The units were excavated in arbitrary levels to determine the presence of undisturbed material. The Miller site was tested using shovel tests, 1x1 m and 2x2 m test units in different parts of the site to determine the extent and nature of the deposits throughout the site area.

RESULTS: The Sherwood site deposits are disturbed and hold little to no potential to provide useful archaeological information. The Miller site is partially disturbed in a portion of the site thought to be the campsite area. Analysis of the excavated materials is in progress.

REPORT: In preparation

85-52

Barry J. Dau
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Soquip Alberta Inc./Grant Trimble Engineering Ltd.
Gas well sites, southeastern Alberta

PROJECT TYPE: HRIA

LOCATION/SETTING: The project area was located on gently rolling Crown grazing land immediately east of the South Saskatchewan River and immediately south and east of the Suffield Military Reserve, southeastern Alberta.

METHODOLOGY: The project consisted of the examination of four proposed gas well sites. The surface of all development locations was assessed in a series of foot traverses 5 to 15 m in width, with all natural subsurface exposures examined in detail. Where natural exposures were lacking, a series of shovel tests was dug.

RESULTS: No new historic resource sites were found during the project. It was noted, however, that Soquip Alberta Inc. had followed the recommendations made in 1983 for the protection of stone circle site EbOp-166 that was located within a proposed well site.

REPORT: Complete, entitled "Historical Resources Impact Assessment of Four Proposed Gas Wellsites near the South Saskatchewan River, southeastern Alberta", by Barry J. Dau.

85-53

John H. Brumley
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Alberta Transportation
Borrow pit mitigation

PROJECT TYPE: Mitigation at EaPk-96

LOCATION/SETTING: Located on the prairie edge overlooking the valley of Willow Creek west of Stavely, Alberta.

METHODOLOGY: EaPk-96 was described as consisting of five stone circles and four small stone cairns. Work involved excavation of 25 sq. m within three stone circles at the site, and 25 sq. m between rings and in a low lying "swale" area.

RESULTS: Previous mitigation had indicated a Late Prehistoric post-Avonlea date for one of the stone circles. A charcoal sample obtained from an associated hearth should provide chronometric control for this feature. Excavations within the swale area indicated the presence of stratified deposits to a depth ca. 35 cm below surface. Cultural material consisted largely of fire broken rock and debitage, with diagnostic artifacts restricted to a small quantity of ceramics found within the upper 10 cm of deposits.

SITE TYPES: Stone circle/cairn

DATES: Late Prehistoric; charcoal sample submitted for dating.

REPORT: In preparation

85-54

Rebecca J. Balcom
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Alberta Recreation and Parks
Winter Olympics mitigation

PROJECT TYPE: Historical resources impact mitigation of EgPu-14

LOCATION/SETTING: The site is located on the biathlon trails of the Nordic Venue at Mount Rundle, near Canmore.

METHODOLOGY: Informant interviews were conducted in order to identify the site. A detailed contour map of the site was made and a controlled surface collection was carried out. A total of 30 sq. m was excavated in and around two banked earth foundations, a possible tent foundation, two large exterior pits and a mound feature. Excavation was by shovel and trowel with the matrix being screened through 6 mm mesh, as was deemed necessary.

RESULTS: It was discovered through informant interviews that these facilities were occupied by John Jackson and his partner during the 1910s and 1920s. These men were responsible for supplying mine props to the Georgetown and Canmore Number 1 Mines. From the mitigation program, some architectural details were disclosed and a number of artifacts were collected. These included tin cans, bottles and bottle fragments, square and wire nails, earthenware, stoneware, and some personal objects such as shoes and suspender parts. Evidence of industrial uses of this site was very scanty.

SITE TYPE: Archaeological investigations proved this to be an occupation site. Although informants said that mine props were made here, no archaeological evidence of this was found.

DATES: 1910s - 1920s

REPORT: In preparation

85-55

John Pollock
Settlement Surveys Ltd.
19 Addison Crescent
St. Albert, Alberta

Nu-West Development
Pineview subdivision

PROJECT TYPE: HRIA

LOCATION/SETTING: Pineview Phase II neighborhood, City of St. Albert

METHODOLOGY: The area was examined by systematic foot traverses and surface inspection along with judgemental subsurface testing.

RESULTS: Four prehistoric sites were located (FjPj-37 to 40).

SITE TYPES: Surface campsites, surface scatter, isolated find

REPORT: Complete, entitled "Historical Resources Impact Assessment Phase II Pineview Neighborhood Development Area No. 1 Only City of St. Albert", by John Pollock.

85-56

Barry J. Dau
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Texaco Canada Resources
Manyberries well sites

PROJECT TYPE: HRIA

LOCATION/SETTING: The project was located on gently to moderately rolling prairie grassland adjacent to cultivated areas near Manyberries, Alberta.

METHODOLOGY: The project consisted of a surface examination of two proposed oil well sites and their access roads. All development areas were assessed by foot and vehicle traverses with all natural subsurface exposures examined in detail. Where exposures were lacking, a series of shovel tests was dug.

RESULTS: No historical resource sites were located during the assessment of one of the proposed well sites; at the other well site, however, two historical resource sites (DiOq-13, 14) were recorded. Site DiOq-13 consists of two stone circles. The features are moderately defined and have diameters of 400-500 cm. Within the site area were at least 13 small stone clusters that were interpreted as being of historic origin. The site is situated outside of the proposed well site and will not be disturbed by development. Site DiOq-14 consists of a single, poorly defined stone circle with an inside diameter of approximately 450 cm. The site is situated immediately outside of the access road to the proposed well site and will not be damaged by development.

SITE TYPES: Stone circle

REPORT: Complete, entitled "An Historical Resources Impact Assessment of Two Proposed Oil Wellsites near Manyberries, Southeastern Alberta", by Barry J. Dau.

85-57	**John Pollock** **Settlement Surveys Ltd.** **19 Addison Crescent** **St. Albert, Alberta**	**Texaco Canada Resources** **Well site**

PROJECT TYPE: HRIA

LOCATION/SETTING: Near the north shore of Battle Lake, Alberta, part of the headwaters of the Battle River.

METHODOLOGY: Intensive subsurface testing in a systematic fashion

RESULTS: One prehistoric site (FfPn-1) was located on prominent knoll overlooking Battle Lake and a small tributary creek.

SITE TYPE: Buried campsite

REPORT: Complete, entitled "Historical Resources Impact Assessment Texaco et al. Proposed Well Site in 6-22-46-2-W5M Battle Lake, Alberta", by John Pollock.

ADDITIONAL INFORMATION: The entire Battle Lake shoreline contains a great deal of potential for archaeological site occurrence.

85-58	**Barry J. Dau** **Ethos Consultants Ltd.** **Group Box 20, Veinerville** **Medicine Hat, Alberta**	**The City of Medicine Hat** **Medicine Hat trail system**

PROJECT TYPE: HRIA

LOCATION/SETTING: The project was located within and adjacent to the City of Medicine Hat along the valley edge of the South Saskatchewan River and on the floor and edge of Seven Persons Coulee.

METHODOLOGY: The project consisted of the examination of a series of proposed regional trails within and adjacent to the City of Medicine Hat. Assessment consisted of walking the entire length of the proposed trails and examining the surface within and adjacent to the development zone. All natural subsurface exposures were examined in detail. Where natural exposures were lacking, series of shovel or auger tests were excavated.

RESULTS: No historical resource sites were found along the Seven Persons/Carry Drive Trail which travels along the eastern edge of the city. Six sites (EaOq-36 to 41) were recorded within and adjacent to the Echo Dale Trail which travels from the city along the edge of the South Saskatchewan River to the new Echo Dale Regional Park. Sites EaOq-36, 37, and 38 contained from a few to several hundred pieces of cultural material exposed on the surface. Sites EaOq-39, 40 and 41 contained from 1 to 4 stone circle features per site. The stone circles are all well defined with inside diameters ranging from 400 to 590 cm. Five of the sites were within the proposed trail system. The trails were relocated to avoid all sites. The Saamis Trail is located on the floor of Seven Persons Coulee and travels an area of coulee bottom thought to contain an extension of the Saamis site (EaOq-7). Detailed auger testing within the proposed trail did not recover any cultural material.

SITE TYPES: lithic scatters, stone circles

REPORT: Complete; 2 volumes, entitled "An Historical Resources Impact Assessment of a Proposed Regional Trail System in the City of Medicine Hat, Alberta: Part 1: Echo Dale and Seven Persons/Carry Drive Trails", by Barry J. Dau, and "An Historical Resources Impact Assessment of a Proposed Regional Trail System in the City of Medicine Hat, Alberta: Part 2: Saamis Trail", by Barry J. Dau.

85-60 **Heinz Pyszczyk**
Archaeological Survey of Alberta
Alberta Culture
Ukrainian Cultural Heritage Village Project

PROJECT TYPE: Research, excavations and visual assessment of: 1) Franco school and barn; 2) Chizowsky homestead; 3) Buczacz church site; and, 4) Luzan grocery store.

LOCATION/SETTING: These sites are located in east-central Alberta ranging from near Smoky Lake to Two Hills and south to Innisfree. All sites have been disturbed.

SITE TYPES/DATES: 1) Franco school and barn (ca. 1926-28);
2) Chizowsky homestead (ca. 1915-40);
3) Buczacz church (ca. 1920s); and
4) Luzan grocery store (ca. 1930s).

METHODOLOGY: 1) A large excavation block was opened to expose structural remains at Franco school and barn.
2) The Chizowsky homestead was systematically shovel tested with 50x50 cm units.
3) The Buczacz church was minimally tested with 50x 50 cm units.
4) Luzan grocery store area was tested with one large unit running across its width.

RESULTS: 1) Structural remains were minimal but a detailed plan map of building locations at the Franco site was made.
2) A good sample of artifacts and faunal remains were recovered from the Chizowsky homestead.
3) Minimal structural information was recovered from both the Buczacz church and Luzan grocery store sites.

REPORT: In preparation

85-61

John H. Brumley
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Ocelot Industries Ltd.
Grand Forks Field
well sites

PROJECT TYPE: HRIA

LOCATION/SETTING: The study area consists of two oil well sites situated on the prairie edge overlooking the South Saskatchewan River. The locations were situated north of Grassy Lake in southern Alberta.

METHODOLOGY: Both locations were examined utilizing a series of parallel foot traverses spaced at 10 m intervals. Shovel test holes and existing exposures were employed in subsurface testing.

RESULTS: No cultural material was observed.

REPORT: Complete, entitled "An Historical Resources Impact Assessment of Two Proposed Development Locations Near the Grand Forks, Alberta: Final Report", by John H. Brumley and Barry J. Dau.

85-62

Heinz Pyszczyk
Archaeological Survey of Alberta

Alberta Culture/
City of Calgary
Hunt House

PROJECT TYPE: HRIA, test excavations at possible H.B. Co. store.

LOCATION/SETTING: In Calgary, near the junction of the Elbow and Bow Rivers, east of Fort Calgary. The site has been landscaped and almost continually occupied.

SITE TYPES/DATES: Fur trade/urban (about 1876 - ?)

METHODOLOGY: Various parts of the site were shovel tested (50 x 50 cm tests) to assess historic remains and disturbance.

RESULTS:
1) The results of excavations in 1984 and 1985 demonstrated conclusively that the site has been considerably disturbed.
2) Some photographic evidence exists to indicate that the log building known as Hunt House may not be one of the original H.B. Co. structures.

REPORT: In preparation, describing the investigations, results and recommendations for future work. The artifacts and faunal remains are briefly described and quantified.

85-63

John H. Brumley
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Alberta Transportation
Mitigation of the Gleichen bison kill/campsite

PROJECT TYPE: Mitigation excavation of EfPg-2

LOCATION/SETTING: This project involved mitigation of a small processing area forming the north margin of the Gleichen bison kill/campsite (EfPg-2) in south-central Alberta.

METHODOLOGY: Mitigation involved systematic evaluation of the entire processing area by laying out a grid and drilling and screening auger holes at 5 m intervals. This resulted in the identification of several activity areas which were subsequently excavated. A total of 40 sq. m were excavated.

RESULTS: Excavation resulted in the identification of several pit and surface features which appear to reflect boiling pits. Diagnostic cultural material consists of Late Prehistoric side notched projectile points, South Saskatchewan and Cluny complex ceramics. Extensive quantities of bison faunal material were found associated with all features. Foetal or newborn bison material found at several locations suggests a late winter/spring occupation.

SITE TYPES: Bison kill/campsite/processing area

DATES: Late Prehistoric, based on projectile points and ceramics.

REPORT: In preparation

85-64	Edward J. McCullough Fedirchuk McCullough & Associates Ltd. 304, 1725 - 10 Avenue S.W. Calgary, Alberta	I.C.G. Resources Ltd. Willow Creek pipeline project

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed Willow Creek Tie-In lies adjacent to Willow Creek, Alberta, within the grasslands of southern Alberta. Less than 25% of the proposed right-of-way had been disturbed by cultivation.

METHODOLOGY: Fortuitous exposures and shovel testing along the proposed route were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites.

RESULTS: Four prehistoric sites were identified (EiPc-2 to 5).

SITE TYPES: Artifact scatters, stone circles

REPORT: Complete, entitled "Historical Resources Impact Assessment I.C.G. Resources Ltd. Willow Creek Tie-In", by E.J. McCullough.

85-65	Rebecca Balcom ARESCO Ltd. 2912 - 18 Street N.E. Calgary, Alberta	Canadian Western Natural Gas ADRI branch pipeline

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed water pipeline is located west of Lethbridge. The alternate pipeline routes are about 16 km long and traverse unbroken and cultivated lands. The Oldman River is at the southern end of the route.

METHODOLOGY: The southern 9 km of the proposed route were examined. The route was walked and shovel tests were excavated as deemed appropriate.

RESULTS: One site, DkPf-104, was recorded. This site consists of three pieces of lithic material exposed on the surface. Shovel testing failed to reveal additional materials. Based on the results of the examination of the southern section, Alberta Culture decided that the northern segments did not need to be inspected.

SITE TYPE: Lithic scatter

REPORT: In preparation

85-66

Bea Loveseth
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Alberta Transportation
Salisbury-Harold Creek Road

PROJECT TYPE: Mitigation of sites EiPs-13, EiPr-4, 5

LOCATION/SETTING: In the Rocky Mountains Forest Reserve west of Water Valley, Alberta in heavily forested foothills; EiPs-13 is situated on an isolated prominent knoll in the Little Red Deer River valley; EiPr-4 and EiPr-5 are located on high terraces overlooking Harold Creek.

METHODOLOGY: At EiPs-13, 20 sq. m involving 1x1 m units were excavated. At EiPr-4, 20 sq. m were excavated *en bloc*, while at EiPr-5, 45 sq. m were excavated *in* three areas. A scaled site plan was prepared of all three sites.

RESULTS: The sites were shallowly buried with cultural material present from surface to a depth of no greater than 25 cm. No stratigraphic separation was observed. A total of 536 lithic artifacts were recovered at EiPs-13 and included atlatl and arrow projectile points, bifaces and other specialized tools plus debitage. Identifiable bone was exclusively moose. The prehistoric material was intermixed with historic debris. At EiPr-4, the 348 item lithic assemblage included atlatl projectile points and numerous scraping and cutting implements. Most of the faunal material was highly fragmented with only two shafts identifiable as to moose. The 1385 lithic artifacts at EiPr-5 included atlatl and arrow projectile points, bifaces, scrapers and engraving tools. Bison, deer and moose were identified in the faunal assemblage. Excavations at EiPr-5 revealed three occupations of the site, and distinct activity areas were discerned.

SITE TYPES: Buried campsites

CULTURAL AFFILIATION:
EiPs-13 - Duncan, Hanna, Pelican Lake and Old Women's Phases
EiPr-4 - McKean, Pelican Lake and Besant Phases
EiPr-5 - Duncan, Pelican Lake, Besant, Avonlea and Old Women's Phases

DATES: Based on projectile point typology, EiPs-13, EiPr-5 - Late and Middle Prehistoric Periods, ca. 4500-100 B.P.; EiPr-4 - Late Middle Prehistoric Period, ca. 4500-2000 B.P. Dateable materials such as charcoal or bone were not present. A recent historic component was also present.

REPORT: In preparation

85-67

Michael C. Wilson
Dept. of Geology and Geophysics
University of Calgary
Calgary, Alberta

University of Calgary
Bow River Flood Deposits Study

PROJECT TYPE: Research at EgPm-124: dating of late Holocene flood deposits.

LOCATION/SETTING: In the Point MacKay area of northwest Calgary, on the historic floodplain of the Bow River. This was formerly a sequence of low terraces carpeted with mesic grassland vegetation. Today the area is build over and much of the land surface has been recontoured.

METHODOLOGY: A single 2x2 m test pit was opened to reveal the sequence of stratified Late Holocene fine alluvium. At a depth of 0.2 m, the pit was reduced to 1x2 m; final depth was 1.6 m. The upper 0.9 m was trowelled and handscreened through 1/4 inch hardware cloth because of the presence of buried soils and the possibility of cultural materials. Below this were alluvial sands and gravels, which were shovel-shaved and not screened.

RESULTS: Flood deposits were exposed and sampled. Cultural material was limited to recent historic debris from the contoured zone (all displaced), and a single crude cobble spall from a buried soil.

SITE TYPE: Buried tipi ring (excavated 1977) with overlying historic component, possibly late 19th century.

REPORT: In preparation; tipi ring excavations and historic component previously published (Wilson, 1983, *Plains Anth.*, 18 (102 pt 2): 113-137; Wilson, 1983, *Alberta Arch. Rev.*, 6:9-20; Wilson, 1983, *Mercury Series, Arch. Surv. Canada Paper* 114).

85-68

Bea Loveseth
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Canterra Energy Ltd.
Hussar gas pipeline

PROJECT TYPE: HRIA

LOCATION/SETTING: North of Chancellor, in the western Wintering Hills; 90% of the right-of-way was cultivated lands.

METHODOLOGY: Field reconnaissance involved foot traverse complemented by shovel testing of the entire 21 km x 15 km pipeline right-of-way.

RESULTS: Seventeen prehistoric sites (EgPe-8 to 15, EhPe-16 to 24) were recorded. Only one site, EhPe-18, was considered of significance. It was avoided.

SITE TYPES: Tipi ring, small campsites, lithic scatter, small and isolated finds

REPORT: Complete, entitled "Final Report, Historical Resources Impact Assessment, Canterra Energy Ltd. Hussar North Looping Project", by B.A. Loveseth.

85-69

Edward J. McCullough
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Amoco Canada Petroleum Ltd.
Elk Point thermal project

PROJECT TYPE: HRIA

LOCATION/SETTING: The project is located south of Elk Point, Alberta in the parkland of eastern Alberta. Approximately 95% of the project area had been disturbed by cultivation.

METHODOLOGY: Fortuitous exposures and shovel testing in the priority areas (as determined by the Archaeological Survey of Alberta) were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites.

RESULTS: Five prehistoric sites were identified (FkOr-22 to 26).

SITE TYPES: Isolated finds

REPORT: Complete, entitled "Historical Resources Impact Assessment Amoco Canada Petroleum Ltd. Elk Point Thermal Project", by E.J. McCullough.

85-70

James A. Light
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Luscar Sterco (1977) Ltd.
Coal Valley mine expansion

PROJECT TYPE: Mitigation at FgQe-11

LOCATION/SETTING: The site, FgQe-11, is located in the foothills near Robb, Alberta. It is situated on the east bank of Lovett River, on a terrace about 3 m above the water.

METHODOLOGY: Excavation was limited to areas to be affected by the mine expansion. Shovel testing of the impact area was done to determine areas of artifact density. Twenty 1x1 m units were excavated in 50 cm quadrats and arbitrary 10 cm levels. The soil matrix was screened.

RESULTS: Although diagnostic artifacts (a McKean point) had been recovered in previous work at FgQe-11, none were found during the present excavations. Only three formed tools were recovered, two unifaces, and a biface fragment. In all, 95 stone artifacts and 22 bone fragments were recovered. Historic artifacts such as flat glass, white earthenware, and wire nails were noted throughout the site to a depth of 10 cm.

SITE TYPE: Prehistoric campsite

REPORT: Complete, entitled "Excavations at FgQe-11 Mitigation of the Luscar Sterco Coal Valley Mine Expansion", by James A. Light.

85-71

Bea Loveseth
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

D.A. Watt Consulting Group Limited
Strathcona area residential subdivision

PROJECT TYPE: Test excavations at EgPn-294, 295

LOCATION/SETTING: In southwest Calgary; area characterized by native grasslands with aspen groves.

METHODOLOGY: Excavation of two 2x2 m units at both EgPn-294 and EgPn-295 to determine the significance of buried cultural remains. Units were located near backhoe tests conducted in May 1982.

RESULTS: Two buried components with sparse cultural material of bone and lithics were discovered at both EgPn-294 and EgPn-295.

SITE TYPES: Small kills/campsites

REPORT: Complete, entitled "Final Report, Conservation Evaluation Studies EgPn-294 and EgPn-295", by Bea Loveseth.

85-72	**Gloria J. Fedirchuk** **Fedirchuk McCullough & Associates Ltd.** **304, 1725 - 10 Avenue S.W.** **Calgary, Alberta**	**Gulf Canada Resources** **Garrington Lanaway pipeline project**

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed project is situated between Dickson and the Clearwater River, Alberta, within the Boreal-Cordilleran Transition Zone. Approximately 85% of the proposed right-of-way had been partially disturbed by cultivation.

METHODOLOGY: Fortuitous exposures along the proposed route and shovel hole testing were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites.

RESULTS: Three prehistoric sites were identified (FaPp-17, 18, FaPq-8).

SITE TYPES: Campsite, kill site/butchering station, isolated find

DATES: FaPp-17: Late Prehistoric (?), based on discovery of possible triangular projectile point.

REPORT: Complete, entitled "Historical Resources Impact Assessment Gulf Canada Resources Garrington Lanaway Pipeline Project", by G.J. Fedirchuk.

85-73	**Bea Loveseth** **Lifeways of Canada Ltd.** **317 - 37 Avenue N.E.** **Calgary, Alberta**	**Dome Petroleum Limited** **Majorville gas plant and gathering system**

PROJECT TYPE: HRIA

LOCATION/SETTING: The study area in south-central Alberta, is located approximately 17.5 km east of Milo in hummocky disintegration moraine terrain characterized by knolls and depressions, many containing seasonal sloughs. Over 80% of the land was cultivated.

METHODOLOGY: The 160 m by 290 m Majorville gas plant site was examined utilizing an approximately 75 m traverse interval. The 8 km x 15 m wide pipeline right-of-way was examined visually, complemented by shovel testing in unbroken lands.

RESULTS: No historical resource sites were found within the study area but two, EdPd-11 and 12, were observed on prominent features west of the gas plant and east of the pipeline, respectively. EdPd-11 consisted of one ring and five cairns. EdPd-12 contained nine rings, six cairns and two effigies.

SITE TYPES: Stone features

REPORT: Complete, entitled "Final Report, Historical Resources Impact Assessment Dome Petroleum Limited Majorville Gas Plant and Gathering System", by Bea Loveseth.

85-74	Bea Loveseth Lifeways of Canada Ltd. 317 - 37 Avenue N.E. Calgary, Alberta	O'Rourke Engineering Ltd. Hoadley gas gathering system

PROJECT TYPE: HRIA

LOCATION/SETTING: South and west of Pigeon Lake on flat to undulating hills, mainly treed, and crossing the Battle River and Muskeg Creek.

METHODOLOGY: Pipeline rights-of-way totalling 18 km with a width of 15 m, were traversed on foot, and all disturbed lands were visually examined; shovel testing was conducted in wooded and pasture lands.

RESULTS: No historical resource sites were recorded.

REPORT: Complete, entitled "Final Report, Historical Resources Impact Assessment Soquip Alberta Inc. Hoadley Gathering System Twp 45 and 46, Rge 1 and 2, W5M", by Bea Loveseth.

85-75	John Pollock Settlement Surveys Ltd. 19 Addison Crescent St. Albert, Alberta	Nova, An Alberta Corporation Marlboro lateral and meter station

PROJECT TYPE: HRIA

LOCATION/SETTING: Edson area

METHODOLOGY: Work consisted of foot traverse and extensive subsurface testing of various high potential areas as selected by Alberta Culture staff.

RESULTS: No sites were located.

REPORT: Complete, entitled "Historical Resources Impact Assessment 219.1 mm Marlboro Lateral Pipeline and Meter Station", by John Pollock.

ADDITIONAL INFORMATION: Although no sites were located during this project, the area is considered to have potential.

85-77	Sheila J. Minni 9604 - 151 Street Edmonton, Alberta	Nova, An Alberta Corporation Wembley and Henderson Creek pipelines

PROJECT TYPE: HRIA

LOCATION/SETTING: The Henderson Creek pipeline right-of-way was 3 km long, located 102 km northwest of Grande Prairie; the Wembley pipeline right-of-way was 24 km long, located 38 km northwest of Grande Prairie. Over 90% of the proposed right-of-way passed through cultivated fields.

METHODOLOGY: The areas were examined by foot survey supplemented by shovel tests.

RESULTS: Four prehistoric sites and one historic archaeological site were located (GiQt-11 to 14, GlQw-3). All sites consisted of limited numbers of artifacts surficially apparent in cultivated fields.

SITE TYPES: Farmstead (1920s), isolated finds, artifact scatters

REPORT: Complete, entitled "Historical Resources Impact Assessment, Wembley and Henderson Creek Pipelines", by Sheila Minni.

85-78

Barry J. Dau
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Alberta Environment
Forty Mile Coulee
reservoir

PROJECT TYPE: Mitigation/excavation of 12 sites

LOCATION/SETTING: The project is located within a proposed irrigation reservoir situated in Forty Mile Coulee, approximately 35 km south of Bow Island, Alberta.

METHODOLOGY: The main purpose of the project was to collect data from a series of sites threatened with destruction due to the construction of the containment dams for the Forty Mile Coulee Reservoir. Mapping and auger testing were planned for sites DjOu-9, DkOu-1, 3, 17, 28, 29, 30, 32 and 33. Excavations were planned for sites DjOu-2, DjOu-3 and DkOu-7.

At DjOu-2 and DkOu-7, subsurface testing consisted of excavating 70 sq. m at 7 stone circles and 10 sq. m at 5 cairns. Excavations were completed using standard 1x1 m test pits or a series of 25 cm wide trenches. The main purpose was to collect data on activity areas inside and outside the features.

At site DjOu-3, 40 sq. m were allocated to help in defining a buried occupation at a single stone circle in the site. In addition, the excavation plan called for the defining of a possible buried stone circle and for the collection of diagnostic materials from the buried occupation.

RESULTS: A total of 394 pieces of cultural material were collected from the 93 sq. m excavated at eight stone circles and one cairn. The onset of winter prevented completion of all 120 sq. m of excavation planned. The cultural materials recovered are typical of open plains stone circle sites and consist primarily of fire cracked rock, debitage, and "low value" stone tools. They suggest short term non-winter occupations for the sites evaluated. No diagnostic or dateable materials were recovered during the course of the project.

SITE TYPES: Stone circle, stone circle/cairn

REPORT: In preparation, to be entitled "Historical Resource Investigations Within the Forty Mile Coulee Reservoir Project: Summary and Evaluation of the 1985 Fieldwork", by Barry J. Dau.

85-79

Michael R.A. Forsman
Archaeological Survey of Alberta

Alberta Culture
Greenwich House, GePa-16

PROJECT TYPE: Site assessment, mitigation of suspected Greenwich House location.

LOCATION/SETTING: Along the west shore of Lac La Biche, near the modern community.

METHODOLOGY: In September, 1985, 5 employees of the Archaeological Survey of Alberta excavated the site area to determine the presence of a historical resource and to assess the extent of land surface alterations. Visual inspection of the exposed soils was carried out to recover artifacts from the surface. Test excavations included a trench and several shovel tests.

RESULTS: Only 7 historic artifacts, one potsherd and one quartzite flake were found; none were contemporary with the period of Greenwich House occupancy. No features such as fireplace rocks, cellar depressions or structural remains were observed. Test excavations failed to expose any remains of historical resources. Land surface disturbance was extensive but there was no evidence for impact to any existing historical resource.

SITE TYPES: prehistoric and historic

DATES: Late prehistoric and mid-to-late nineteenth century components, based on artifacts recovered.

REPORT: Complete, entitled "Final Report Archaeological Investigation of GePa-16", by Michael R.A. Forsman.

85-80

Margaret Kennedy
Dept. of Archaeology
University of Calgary
Calgary, Alberta

Alberta Historical Resources Foundation
Lafayette French whiskey trader's cabin

PROJECT TYPE: Research excavations

LOCATION/SETTING: Site is located in front yard of home on the west edge of the town of High River. Area is former floodplain of Highwood River, characterized by old river channels vegetated by willow and poplar.

SITE TYPE: Independent whiskey trader's shanty (assumed to be that of Lafayette French)

METHODOLOGY: Research excavations were conducted over weekends during the fall of 1985 (weather permitting), with a crew consisting of University of Calgary, Dept. of Archaeology students. The foundation feature was gridded and mapped, then excavated along the north wall mound. The excavations continued into the interior of the cabin, and east into the chimney mound. Twenty sq. m have been excavated to date.

RESULTS: Wood fragments were encountered but no preserved log segments were found. Cut nails and flat window glass were recovered, as were some bone fragments (largely bison vertebra fragments). No time diagnostic artifacts (other than nails) were identified. Don King, who tested the site in the early 1960s, recovered a lead musket ball and bottle glass fragments, but we found nothing similar. The site was backfilled after worsening winter weather brought a halt to the project.

REPORT: In preparation

85-81

Bea Loveseth
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Westridge Petroleum Corporation
Cygnet-Prevo area gas gathering system

PROJECT TYPE: HRIA

LOCATION/SETTING: East and south of Sylvan Lake to the western outskirts of the city of Red Deer; area is relatively flat transitional zone between aspen parklands and prairie, with 80% cultivated lands.

METHODOLOGY: The 35 km x 15 m wide pipeline rights-of-way were examined by foot traverse with limited shovel testing.

RESULTS: Eight prehistoric sites (FbPm-2, 3, FbPl-12 to 14, FcPm-24 to 26) were located. None were judged of sufficient value to warrant additional research.

SITE TYPES: Isolated and small finds and lithic scatters

REPORT: Complete, entitled "Historical Resources Impact Assessment Cygnet-Prevo Area Gas Gathering System", by Bea Loveseth.

85-82

Edward J. McCullough
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

PanCanadian Petroleum Ltd.
Lindbergh heavy oil project

PROJECT TYPE: HRIA

LOCATION/SETTING: The portions of the proposed Lindbergh Heavy Oil Project investigated under this permit are situated south and east of Lindbergh, Alberta, in the parkland of eastern Alberta. Approximately 85% of the project area had been disturbed by cultivation.

METHODOLOGY: Fortuitous exposures and shovel testing in the priority areas (as determined by the Archaeological Survey of Alberta) were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites.

RESULTS: Nineteen prehistoric (FkOo-12 to 20, FkOp-6 to 10, FkOq-43 to 47) and two historic (FkOo-21, 22) sites were identified.

SITE TYPES: Prehistoric campsites, artifact scatters, isolated finds, historic cellar depressions

REPORT: Complete, entitled "Historical Resources Impact Assessment PanCanadian Petroleum Limited Lindbergh Heavy Oil Project", by E.J. McCullough.

85-83

Bea Loveseth
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Suncor Inc. Resources Group
Drumheller area well sites

PROJECT TYPE: HRIA

LOCATION/SETTING: The two well sites are located at prairie level adjacent to Michichi Creek and a tributary east and south of Munson. Michichi Creek drains into the Red Deer River near Drumheller.

METHODOLOGY: Foot traverses of the two well site locations covering approximately 2.7 ha were conducted at intervals of approximately 20 m. Shovel testing to depths of 30 cm was undertaken where ground visibility was poor.

RESULTS: No historical resource sites were identified.

REPORT: Complete, entitled "Historical Resources Impact Assessment Suncor Wellsite Leases Drumheller (4-18, 16-18)", by Bea Loveseth.

85-84

Don Steer
DS Consulting
723 Woodpark Blvd. S.W.
Calgary, Alberta

Nova, An Alberta Corporation
Tange Creek lateral gas pipeline

PROJECT TYPE: HRIA

LOCATION/SETTING: Northwest of Hotchkiss in northwestern Alberta (Naylor Hills); terrain varied from an extensive floodplain of the Chinchaga River (west) to strongly undulating uplands (east). Much of the corridor passed through burnt forest cover and areas of organic terrain.

METHODOLOGY: The 31.7 km right-of-way was examined during foot traverses, with visual surface examination and extensive shovel testing.

RESULTS: No historical resource sites were located.

REPORT: Complete, entitled "Historical Resources Impact Assessment, Proposed Tange Creek Lateral Gas Pipeline Corridor", by Don Steer and Malcolm James.

85-85

Edward J. McCullough
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Singleton Associated Engineering Ltd./
Bow River Pipelines Ltd.
Princess North Loop pipeline project

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed project is situated between Princess and Wardlow, Alberta, in the grasslands of southern Alberta. Although approximately 15% of the project area had been disturbed by cultivation, previous pipeline construction provided continuous exposure along the proposed route.

METHODOLOGY: Fortuitous exposures and shovel testing were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric sites.

RESULTS: Four prehistoric sites were identified (EeOw-5, EfOv-55 to 57).

SITE TYPES: Campsites, artifact scatters

REPORT: Complete, entitled "Historical Resources Impact Assessment Singleton Associated Engineering Ltd. Bow River Pipelines Ltd. Princess North Loop Project", by E.J. McCullough.

85-86

John H. Brumley
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Alberta Environment
Oldman River Dam

PROJECT TYPE: HRIA

LOCATION/SETTING: Development locations examined consisted of a riprap borrow source in the Livingston Gap along the Oldman River north of Blairmore, and four test hole sites along the Oldman River between Lundbreck and Brocket.

METHODOLOGY: Examination of proposed development area involved foot traverse of the entire area and, where existing exposures were absent, excavations of shovel hole tests.

RESULTS: Within the proposed borrow area, two previously recorded sites (DlPo-5, 6) and three newly discovered sites (DlPo-64 to 66) were located and evaluated. All but DlPo-6 are aboriginal campsites. DlPo-6 appears to be a historic lime kiln of Euro-Canadian origin. A single stone circle site, DkPm-25, was recorded in association with the drill holes.

SITE TYPES: Historic lime kiln, buried campsites, stone circles

REPORT: Complete, entitled "An Historical Resources Impact Assessment of Select Ancillary Developments for the Oldman River Dam: Report 1", by John Brumley.

85-87

Rebecca Balcom
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

B P Canada Inc.
Wolf Lake Phase Two
oil sands expansion
project

PROJECT TYPE: HRIA

LOCATION/SETTING: The Wolf Lake Expansion Project - Phase 2, is located in the Lakeland region of Alberta, about 12 km east of Wolf Lake and 50 km north of the town of Bonnyville. The area is treed with poplar, birch and spruce.

METHODOLOGY: Personnel from the Archaeological Survey of Alberta used air photos to select high potential areas to be examined. Selected portions were inspected by means of narrowly spaced foot traverses and judgemental shovel tests.

RESULTS: Two sites were recorded during the field study (GeOq-1, GeOp-8). GeOq-1 is located on a ridge overlooking a large pond to the south. All 36 flakes were from one of the seven tests excavated here. GeOp-8 is on the southwest shore of Sinclair Lake. Forty artifacts were excavated from ten tests.

SITE TYPES: Buried campsites

REPORT: In preparation

85-88

Rebecca Balcom
ARESCO Ltd.
2912 - 18 Street N.E.
Calgary, Alberta

Canadian Superior Oil Ltd.
pipeline, well sites/
access roads

PROJECT TYPE: HRIA

LOCATION/SETTING: The facilities are located north of Taber, about 2 km west of the Oldman River.

METHODOLOGY: The proposed developments were visually examined and shovel tested in areas of high probability for historical resources. Sites were shovel tested and recorded.

RESULTS: Two sites (DlPb-11, 12) were recorded. DlPb-11 has been avoided by the developments and DlPb-12 will only be partially impacted.

SITE TYPES: Tipi ring, small lithic scatter

REPORT: Complete, entitled "Historical Resources Impact Assessment Canadian Superior Pipeline, Wellsites and Access Roads 13-11-17-4 and 7-11-16-4 near Taber", by Rebecca J. Balcom.

85-89

Edward J. McCullough
Fedirchuk McCullough &
Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Suncor Inc.
Burnt Lake heavy oil
project

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed Burnt Lake Thermal Project Stages 1 to 4 are situated within and immediately adjacent to the

Cold Lake Air Weapons Range, in the boreal forest of northeastern Alberta.

METHODOLOGY: Priority areas for investigation were selected by the Archaeological Survey of Alberta. A helicopter overflight was undertaken to evaluate their potential. Fortuitous exposures and shovel testing were used to identify the existence of prehistoric remains in the target areas. Shovel testing was conducted to assess the scientific and cultural potential of the identified sites.

RESULTS: Six prehistoric sites (GeOo-2 to 6, GfOo-1) and one historic site (GeOo-7) were identified.

SITE TYPES: Isolated finds, prehistoric hearth, historic trapper's cabin

REPORT: Incomplete, to be entitled "Historical Resources Impact Assessment Suncor Inc. Burnt Lake Thermal Project Stages 1 to 4", by E.J. McCullough.

85-90

J.M. Calder
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Canterra Energy Limited
Wolf West pipeline

PROJECT TYPE: HRIA

LOCATION/SETTING: West of Edson in the vicinity of the McLeod and Embarras rivers in the western boreal forest.

METHODOLOGY: The project area was assessed prior to field reconnaissance by examination of aerial photography. Major river and creek crossings, ridges, hills and Barchan dunes which comprised approximately 23 km of the pipeline route were selected for foot traverse.

RESULTS: One prehistoric site, FiQd-1, was identified. It consisted of three quartzite flakes on a dune feature overlooking a small lake.

SITE TYPE: Small find

REPORT: Complete, entitled "Final Report, Historical Resources Impact Assessment Wolf West Pipeline Route", by J.M. Calder.

85-91

Stanley G. Saylor
Fedirchuk McCullough &
Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Singleton Associated
Engineering Ltd./
Bow River Pipe Lines Ltd.
Jenner pipeline project

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed project is situated between Jenner and Buffalo, Alberta, in the grasslands of southern Alberta.

METHODOLOGY: Fortuitous exposures and shovel testing were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified sites.

RESULTS: Six prehistoric sites were identified (EeOq-67 to 69, EeOs-24, 32, 33).

SITE TYPES: Artifact scatters, stone circles

REPORT: Complete, entitled "Historical Resources Impact Assessment Singleton Associated Engineering Ltd. Bow River Pipe Lines Ltd. Jenner Lateral Extension", by S.G. Saylor.

85-92

John H. Brumley
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Passburg Petroleum Ltd.
Coutts oil well site

PROJECT TYPE: HRIA

LOCATION/SETTING: This project consists of a single oil well site situated along the crest of a high ridge overlooking the Milk River valley near Coutts in southern Alberta.

METHODOLOGY: Examination involved a series of foot traverses throughout the development area in search of historic resources. Existing exposures were used in determining the presence of subsurface cultural materials.

RESULTS: A single stone circle site, DgPa-12, was located and recorded in the course of this project. Mitigation involved well site relocation.

SITE TYPE: Stone circle

REPORT: Complete, entitled "A Heritage Resources Impact Assessment of Proposed Oil Wellsite Coutts et al 4-22-1-16-4: Final Report", by John H. Brumley.

85-93	**Stanley G. Saylor** **Fedirchuk McCullough & Associates Ltd.** **304, 1725 - 10 Avenue S.W.** **Calgary, Alberta**	**Nova, An Alberta Corporation** **Jenner Milo pipeline project**

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed project is situated east of Milo, Alberta, in the grasslands of southern Alberta.

METHODOLOGY: Fortuitous exposures and shovel testing were used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified sites.

RESULTS: Nineteen sites found thus far (EcPb-12 to 18, EdPb-10 to 12, EdPd-13 to 19); project incomplete due to onset of winter.

SITE TYPES: Range from isolated finds to large stone circle/cairn sites.

REPORT: Incomplete

85-94	**John Pollock** **Settlement Surveys Ltd.** **19 Addison Crescent** **St. Albert, Alberta**	**Alberta Power Limited** **Louise Creek - Little Study transmission line**

PROJECT TYPE: HRIA

LOCATION/SETTING: Near Valleyview

METHODOLOGY: Foot traverse and subsurface testing

RESULTS: One farmstead was located and a Historic Sites form was completed. The site will not be impacted by transmission line construction.

SITE TYPE: Historic farmstead

REPORT: Complete, entitled "Historical Resources Impact Assessment Louise Creek - Little Study 240 kV Transmission Line", by John Pollock.

ADDITIONAL INFORMATION: Although no prehistoric sites were located, the areas inspected did have potential. Areas away from the transmission line near Meekwap Lake appear to have good potential, especially where the outlet stream, Atikkamek Creek, leaves the lake. This creek drains into the Iosegun River.

85-95	**Rebecca Balcom** **ARESCO Ltd.** **2912 - 18 Street N.E.** **Calgary, Alberta**	**Canadian Western Natural Gas** **Taber to Bow Island pipeline**

PROJECT TYPE: HRIA

LOCATION/SETTING: The pipeline extends from Taber to Bow Island. It passes through cultivated lands and native prairie on the south sides of the Oldman and South Saskatchewan rivers.

METHODOLOGY: Alberta Culture has requested that selected segments of the 50 km pipeline be examined. The 14 km that lie in native prairie are to be inspected. The western 4 km were examined in November. The impact assessment will be completed in the spring of 1986 when the weather has improved.

RESULTS: No sites have been found in the areas examined thus far.

REPORT: In preparation

85-96	**Edward J. McCullough** **Fedirchuk McCullough & Associates Ltd.** **304, 1725 - 10 Avenue S.W.** **Calgary, Alberta**	**Alberta Power Limited** **Whitefish Lake - Mildred Lake and 7L41 Marguerite Lake transmission projects**

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed transmission projects investigated under this permit are situated southeast of Lac La Biche, Alberta, in the boreal forest of northeastern Alberta.

METHODOLOGY: Shovel testing was used to identify the existence of prehistoric remains. Shovel testing was conducted to assess the scientific and cultural potential of the identified prehistoric site.

RESULTS: One prehistoric site was identified (GcOx-2).

SITE TYPE: Artifact scatter

REPORT: Complete, entitled "Historical Resources Impact Assessment Alberta Power Limited 7L41 to Marguerite Lake Substation 240/144kV Whitefish Lake to Mildred Lake 240kV Transmission Projects", by E.J. McCullough.

85-97

J.M. Calder
Lifeways of Canada Ltd.
317 - 37 Avenue N.E.
Calgary, Alberta

Brisbin Gates Engineering Ltd.
residential subdivision

PROJECT TYPE: HRIA

LOCATION/SETTING: Located immediately east of Airdrie, the land is relatively flat with a few north-south trending ridges and is presently cultivated.

METHODOLOGY: The study area of 128 ha was examined by foot traverses with surficial inspection of exposed ground surfaces.

RESULTS: No historical resource sites were recorded.

REPORT: Complete, entitled "Final Report, Historical Resources Impact Assessment, North Half Sec 11, Twp 27, Rge 1, W5M", by J.M. Calder.

85-98

Stanley G. Saylor
Fedirchuk McCullough & Associates Ltd.
304, 1725 - 10 Avenue S.W.
Calgary, Alberta

Canadian Superior Oil Ltd.
Taber well sites, access roads

PROJECT TYPE: HRIA

LOCATION/SETTING: The proposed well sites and access roads investigated under this permit are situated near Taber, Alberta, in the grasslands of southern Alberta.

METHODOLOGY: Fortuitous exposures were visually examined for the presence of prehistoric remains.

RESULTS: No sites found to date; project incomplete due to onset of winter.

REPORT: Incomplete

85-99

John H. Brumley
Ethos Consultants Ltd.
Group Box 20, Veinerville
Medicine Hat, Alberta

Lacana Petroleum Ltd.
Matziwin gas field

PROJECT TYPE: HRIA

LOCATION/SETTING: This project involved examination of eight proposed gas well sites situated within and adjacent to the Red Deer River Valley in south-central Alberta.

METHODOLOGY: The locations were examined in December under winter conditions, with snow cover averaging 7-8 cm. Examination involved a foot traverse of all well sites, in search of stones protruding from the snow, or slight irregularities in the snow surface which would indicate covered surface material. Further examination involved systematic stripping of snow from proposed mud pit locations.

RESULTS: Three sites, EgOx-30, 31 and 64 were located and evaluated in the course of this project.

SITE TYPES: Historic ranch or farmstead, stone circles

REPORT: Complete, entitled "An Historical Resources Impact Assessment of Eight Gas Wellsites in the Matziwin Area of South Central Alberta: Final Report", by John Brumley.

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